TRANSCRIPT OF PROCEEDINGS

PUBLIC HEARING: PROPOSED RULE)
DIESEL PARTICULATE MATTER)
EXPOSURE OF UNDERGROUND COAL)
MINERS)

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DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

PUBLIC HEARING: PROPOSED RULE)
DIESEL PARTICULATE MATTER)
EXPOSURE OF UNDERGROUND COAL)
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National Mine Health And
Safety Academy
Airport Road
Beaver, West Virginia

Thursday,
November 19, 1998

The public hearing convened, pursuant to the notice, at 9:08 a.m.

MODERATOR: THOMAS TOMB

APPEARANCES:

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PAMELA KING

P R O C E E D I N G S

MODERATOR TOMB: My name is Thomas Tomb. I'm Chief of the Dust Division of MSHA's Pittsburgh Safety and Health Technology Center in Pittsburgh, Pennsylvania, and I will be the moderator of this public hearing on MSHA's proposed rule, adjusting diesel particulate matter exposure of underground coal miners. Personally, and on behalf of Assistant Secretary J. Devitt McIntyre, I would like to take this opportunity to express our appreciation to each of you for being here today and for your input.

With me on the panel today from MSHA are Jon Kogut from the Office of Program Evaluation and Information Resources; George Saseen from the Approval and Certification Center; Robert Haney from the Pittsburgh Safety and Health Technology Centers, Environmental Assessment and Contaminant Control Branch; Sandra Wesdock from the Office of the Solicitor; William McKinney from the Mine Safety and Health Academy; Ronald Ford and Pamela King from the Office of Standards, Regulations and Variances.

This hearing is being held in accordance with Section 101 of the Federal Mine Safety and Health Act of 1977. As is a practice of this Agency, formal rules of evidence will not apply. We are making a verbatim transcript of this hearing. It will be made an official part of the rule-making record. The hearing transcript,

along with all of the comments that MSHA has received today on the proposed rule, will be available for your review. If you want to get a copy of the hearing transcript for your own use, however, you must make your own arrangements with the reporter.

We value your comments. MSHA will accept written comment and other data from anyone, including those of you who do not present an oral statement. You may submit written comments to Pamela King during this hearing or send them to Carol Jones, Acting Director, Office of Standards, Regulations and Variances in our Arlington office. The address for the Arlington office is also in the notice for this hearing. We will include them in the rule-making record. If you feel you need to modify your comments or wish to submit additional comments following the hearing, the record will stay open until February 16, 1999. You are encouraged to submit to MSHA a copy of your comments on computer disk.

Your comments are essential in helping MSHA develop the most appropriate rule that fosters safety and health in our nation’s minds. We appreciate your views on this rule-making and assure you that your comments, whether written or oral, will be considered by MSHA in finalizing this rule.

In another rule-making on October 29, 1998, we

published a proposed rule to address diesel particulate matter exposure of underground metal and non-metal miners. The comment period for that proposed rule will close on February 26, 1999. Hearings for the metal and non-metal proposal will be announced in the future in the Federal Register. You may obtain copies of that proposal by downloading it from MSHA's website at www.msha.gov or by calling the Office of Standards, Regulations and Variances at (703) 235-1910.

However, the scope of this hearing today is limited to the April 9, 1998 proposed rule addressing diesel particulate matter exposure of underground coal miners. This hearing is the second of four public hearings to be held on a proposed rule. The first was held in Salt Lake City, Utah on November 17, 1998. We will hold the third hearing on December 15, 1998 in Mt. Vernon, Illinois and the fourth of the final hearings on December 17, 1998 in Birmingham, Alabama. Information regarding these hearings is published in the Federal Register on October 19 and can also be obtained from MSHA's website on the Internet. And also, there are a few copies of that notice available here today that you can pick up, if you would like a copy.

On April 9, 1998, MSHA published a proposed rule that would reduce the risk to underground coal miners of serious health hazards that are associated with exposure to

high concentrations of diesel particulate matter. Diesel particulate matter is a very small particle in diesel exhaust. Underground miners are exposed to far higher concentration of this fine particulate than any other group of workers. The best available evidence indicates that such high exposures puts these miners at excess risk of a variety of adverse health effects, including lung cancer.

The comment period for the proposed rule was scheduled to close on August 7, 1998. However, due to requests from the mining community, the Agency extended the comment period for an additional 60 days, until October 9, 1998.

The proposed rule would require the following: Proposed paragraph 72.500 would require the installation and maintenance of high efficiency, particularly filters, and the most polluting types of diesel equipment in underground coal mines. It would require that beginning 18 months after the date that the rule is promulgated, any piece of permissible -- and I stress permissible -- diesel-powered equipment operated in an underground coal mine must be equipped with a system capable of removing on average at least 95 percent of the mass of the diesel particulate matter emitted from the engine.

Additionally, beginning 30 months after the rule is promulgated, any non-permissible piece of heavy-duty

diesel-powered equipment operated in an underground coal mine be equipped with a system capable of removing on average at least 95 percent of the mass of the diesel particulate material emitted from the engine. Any exhaust after treatment device installed to reduce the emission of DPM would be required to be maintained in accordance with the manufacturer's specifications.

The proposal also sets forth the Agency's requirements for determining whether a system is capable of removing on average at least 95 percent of diesel particulate matter by mass. It states that a filtration system must be tested by comparing the results of an emission test of an engine with and without the filtration system installed.

Proposed paragraph 72.510 is a training requirement, which lists the pertinent areas in which instruction must occur. The training is to be provided annually in all mines using diesel-powered equipment and is to be provided without charge to the miner. It also includes provisions on the records retention, access, and transfer.

And finally, proposed amendment to paragraph 75.371 would amend existing paragraph 75.371, which is a ventilation requirement, to add one new requirement to an underground coal mine's ventilation control plant. The

additional information is limited, but it is critical to the control of diesel particulate matter. The proposal would require the ventilation plan to contain a list of diesel-powered units used by the mine operator, together with information about each unit's emission control or filtration system. Details relative to the efficiency of the system and the methods used to establish the efficiency of the system for removing DPM must also be included. Any amendments to a mine's ventilation plan must, of course, also fall within the requirements of 30 CFR 75.370, which is the mine's ventilation plan submission and approval requirements.

MSHA has received comments from various sectors of the mining community and has preliminarily reviewed the comments it has received thus far. MSHA would particularly like additional input from the mining community regarding specific alternative approaches discussed in the economic feasibility section of the preamble. As you might recall, the options discussed include: establishing a concentration limit for DPM in this sector; requiring filters on some light duty equipment; and looking at the filter and engine as a package that has to meet a particular emission standard, instead of requiring that all engines be equipped with just a high efficiency filter.

The Agency is also interested in obtaining many

examples -- as many examples as possible of the specific situation in individual mines. This could include the composition of the diesel fleet, what controls cannot be utilized due to special conditions, and any studies of alternative controls you might have used that could be used for the computer spreadsheet. We also seek information about the availability and cost of various control technologies that are being developed, such as high efficiency ceramic filters; also, experience with the use of available controls and information that will help us evaluate alternative approaches for underground coal mines. We would like also to hear about any unusual situations that might warrant the application of special provisions.

The Agency welcomes comments on any topics on which we should provide initial guidance, as well as any alternative practices which MSHA should accept for compliance, before various provisions of the rule go into effect. Additionally, the National Environmental Policy Act of 1969 requires each federal agency to consider the environmental effects of proposed actions and to prepare an environmental impact statement on whether actions significantly affecting the quality of the human environment.

On July 14, 1998, MSHA published a notice in the Federal Register that announced its preliminary

determination that the proposed rule will have no significant environmental impact. The comment period was scheduled to close on August 10, 1998. However, MSHA extended the comment period until October 9, 1998. The record will remain open, as stated in the public hearing notice, until February 16, 1999, to allow for post-hearing comments and data submission.

MSHA views these rule-making activities as extremely important and knows that your participation is also a reflection of the importance your association is with this rule-making. To ensure that an adequate record is made during this proceeding, when you present your oral statements or otherwise address the panel, I ask that you come to the podium and clearly state your name, spell your name, and the name of the organization that you represent.

It is my intent that during this hearing, anyone who wishes to speak will be given an opportunity. Anyone who has not previously asked for time to speak needs to tell us of their intention to do so by signing the request to speak sheet, which is outside the door of the auditorium. Also, tell us how much time you would need to make your presentation.

We are scheduled to go until 5:00 p.m. today. Of course, we can call a halt, if we run out of speakers. I will attempt to recognize all speakers in the order in which

they request to speak. However, as the moderator, I reserve the right to modify the order of presentation, in interest of fairness. And the way that I intend to do this is I would like you to limit your presentation to 30 minutes, to give everybody an opportunity to speak. And when everybody has spoken, if you haven't finished your presentation in 30 minutes, then you'll be given an opportunity to continue with your presentation.

We have three or four people that have pre-scheduled, that I have listed here, to start the presentation. So if there are no -- okay, I'd like to start the hearing by having the first presenter, who would be from the United Mine Workers of America, and I don't know who that will be, but -- Jeff?

The first person to make a presentation will be Dr. James Weeks, from the UMWA.

MR. WEEKS: Good morning. My name is Jim Weeks. I'm an associated professor at the School of Public Health at George Washington University and I'm speaking here on behalf of the United Mine Workers.

First of all, let me congratulate MSHA on two matters, one of which is responsive to the question that your raised about an exposure limit. In this rule, you did not propose an exposure limit. I think that's appropriate, at this point.

My concern with proposing an exposure limit is that it would bring scientists and lawyers and economists and so on to the floor, in what could be a very lengthy and tedious debate over what the exposure limit should be. I think the critical need, at this point, is not to have that debate and not to try and set an exposure limit. But the critical need now is to reduce exposure that already exists. I think eventually, obviously, we do need an exposure limit, but I don't think we should hold up this rule-making, in order to try and accomplish that now.

I think what you've done in proposing emission controls for in-by and some out-by equipment is appropriate. It's a common sense approach. It takes feasible and effective control technology, requires it on these engines, and in so doing, will reduce exposure.

There are some problems with the way you've done that. I think some of our members will elaborate on those. And I think the answer to your second question, which is whether light duty out-by equipment should be required to have the emission controls, I think the answer to that is yes. I think we should do that, because -- well, that will be explained later by others.

This issue of a potential delay is of serious concern here. Let me just note that the diesel advisory committee in 1987, I believe it was, recommended that the

Agency set rules for exposure. That was 11 years ago. And I think during that time, people have encountered exposure to diesel particulate matter that really much of it could have been avoided.

Now, my second area that I'd like to congratulate you on is on the risk assessment that was in the preamble to the rule. I think this risk assessment was thorough. It was balanced. I think it accurately characterized the strengths and weaknesses of the scientific data, and I think it was responsive to the requirements of the Act. I think it forms a very good and solid foundation for us to go ahead with this rule and any other rule-making that follows on.

Now, let me highlight -- what I would like to do is to highlight some features of the data and characterize it in a way in which we see the data. First of all, let me say that I think the scientific data is coherent and, in fact, is remarkably coherent. Many had characterized that data as inconsistent, as inconclusive, and so on. I don't agree with that approach. I think it is coherent.

What I mean by that is that -- well, let me explain. The level of risk that comes out of the scientific data, the relative risk measures are in the neighborhood of -- some go as high as four to five, which is very, very high; most of them are under two; some around 1.5. As measures of relative risk go, these are not overwhelming

levels. Two pack-a-day smoking, for example, I think the risk is around four. Normal is one. So that's one feature of the data that stands out.

The second is that there are many weaknesses in the data. Exposure to diesel particulate matter of other workers that has been -- that has occurred in the past has been measured in a few studies, estimated in most. But, in terms of having an accurate assessment of what workers have been exposed to over the 20 years or so that they need to have been studied, we really don't know what that is with a great deal of certainty. There are some very good estimates, but they remain estimates. So that is one of the weaknesses of the existing data.

The other is, like other -- and the way that would manifest itself is that there will be some bias. There will be some misclassification. And the risk estimates may be biased upward or downward, depending on the specifics of the data. The other feature of the data is that like all epidemiologic studies, there is a certain amount of random noise that creates a standard deviation and confidence into those above and below during the estimates.

Now, these two features together, the moderate level of risk and the presence of uncertainty, practically guarantees that there will be some studies that are negative; that will have their lower confidence interval

below one, and there are many studies like that. I do not believe that those studies are inconsistent with the positive studies. On the contrary, I think they all point to this moderate level of risk measured in -- as the relative risk is concerned.

The data are also coherent in the sense that when we look at other ways in which chemicals cause cancer, there are many other systems of evaluating that, diesel particulate matter comes up causing -- or having results that are consistent with causing cancer. It's a product of combustion. There are many other products of combustion that also cause cancer: smoking, for example; coke oven emissions; roofing tar; chimney soot; and recently the byproducts of grilling hamburger also has been noted as carcinogenic.

Diesel exhaust is exactly like these -- not exactly, but it's very, very similar. It's in the same class. So that on that basis alone, we have reason to suspect it as causing cancer. Secondly, in the various other tests systems using cells -- individual cells in culture, it's positive in those systems, as well, both with bacterial cells and mammalian cells. It's positive when tested in laboratory animals, primarily rats. So, we have -- and interestingly enough, the shape of the curve -- the effect curve in rats is very similar to the shape in human

beings; that is, it tends to appear fairly late in the life of a rat, fairly late in the life of human beings. So, the data is coherent in that respect, as well.

There are some unanswered questions about the data. One is we do not know the disease mechanism by which cancer is caused. But, we don't know the disease mechanism by which smoking causes cancer. We don't know the disease mechanism by which exposure to coke oven emission causes cancer. We don't know the mechanism for asbestos and cancer. We don't know it for vinyl chloride monomer and cancer, and so on. This has not prevented us from moving ahead and saying we need to treat this material as a potential carcinogen and will work out many of these scientific details later. The knowledge of disease mechanism would help us understand the disease process, but the absence of that knowledge should not prevent us from moving ahead.

Another unanswered question has to do with the health effect of small particles, of which diesel particulate is almost entirely small particles. That research is going ahead primarily in the environmental field, where the high concentrations of small particles are associated with a variety of ill effects, including cancer, shortened mortality from other causes, asthma, and some other effects. That remains to be researched. And we're

looking at the data, as it exists now, on the effect of small particles.

So there is risk. There is a -- the data is coherent. And I think there are indeed some unanswered questions, but I don't think they should prevent us from moving ahead.

Now, the other point that I would like to make is that when we take the data and ask of the data the question, well, what's a safe level, and we apply essentially state-of-the-art risk assessment methods that were summarized, I think, in the preamble, and apply that to these data, we come up with -- apply that to these data, along with the criteria that was established by the U.S. Supreme Court in the Benzene decision, and would apply that to these data, we come up with estimates of a safe level that are somewhere between 50 and 200 micrograms per cubic meter. That's .05 to .2 milligrams per cubic meter, to use the scale that is used in mining. Now -- so that's -- and in addition to that, the American Conference Governmental Industrial Hygienists has suggested a TLB of 150 milligrams, which is in that range -- it's in that same range.

And if we look at current levels of exposure that you had documented in the preamble, they are much, much higher than these estimates of what a safe level is. And that's true almost across the board. I mean, you take

whatever estimate there is of a safe level, it's much lower than exposure. Now, that circumstance right there, using state-of-the-art risk assessment methodology, combined with current levels of exposure, really requires that we take action now that's going to reduce that exposure, especially in an industry where we worked for 25, 30 years to control dust in coal mines. We should not be adding additional sources of respirable particulate matter.

Now, a reasonable question that one might ask is that how do we get from the moderate level of risk that I talked about in the epidemiologic study to the high level of risk that comes from combining the risk assessment with the criteria. And I think the answer to that comes from the disease that we're concerned with, which is lung cancer. Lung cancer is the most common -- the most common cause of death from cancer is lung cancer, by far. It's true in both men and women, at this point.

Secondly, lung cancer -- almost without exception, most people that are diagnosed with lung cancer have died within five years. 85 to 90 percent of those people have died within five years. So, it is a substantial public health problem already. If we add to that risk -- additional risk a small number times a large number will give you -- could give, and in this case does give you a large number. That's kind of the thinking that I want to

suggest to you, so that we get to that high level of risk from -- because it is lung cancer that we're trying to prevent.

Now, the third matter is that controls -- emission controls are feasible technically, economically, and they're effective. So, the situation that we see is that there is fairly coherent data that shows there's a risk. When you measure that risk, it's very high. And there are feasible and effective controls. That seems to me to be a pretty straight and clear case that we need to do something now to reduce exposure.

Let me make one other comment about the issue of feasibility. In this State, feasibility of meeting the requirements of any diesel rule is a foregone conclusion. Mines in West Virginia and in Pennsylvania and Ohio, I should mention, are among the most productive mines in the world and none of them use diesel-powered equipment. So, there are alternatives. If mine operators find that diesel equipment is too expensive to operate, no one is requiring that they do it, and it's not essential, and there are viable alternatives for them to use. So, in a way, the question of feasibility, as I mentioned, is something of a foregone conclusion. It's already demonstrated this right before us, at the present time.

So, let me just briefly summarize here. I think

the data is coherent. There is a high risk. There are feasible and effective controls. And I think the requirements of the Act, in Section 101 that you referred to, have been met. And I think exposure needs to come down as soon as possible.

Now, do you want to take questions -- or do I want to take questions?

MODERATOR TOMB: We'll see if we have any questions we'd like to ask. Does anybody have any questions? Jon?

MR. KOGUT: I just wanted to clarify the middle point that you made about the high risk, in view of the -- what you said, that the relative risks that have been established are not extraordinarily high, but I think you said that they range from something like four, in some cases, down to about 1.5. I think the average in the studies that we're looking at here were actually closer to 1.4.

MR. WEEKS: Right. Yes, that's true.

MR. KOGUT: It said that the excess relative risk is 1.4. And the way I'm interpreting your point, and correct me if I'm wrong, is that since you're starting out with a large background number of lung cancers in the population already, that when you multiply that large number by a 40 percent excess, that that's a substantial number of

lung cancers. Is that the point you're making?

MR. WEEKS: Yes, that's the point I was trying to make.

MODERATOR TOMB: Any other questions? Thank you, Dr. Weeks.

MR. WEEKS: Sure.

MODERATOR TOMB: Our next presenter will be a Mr. Bob Knisley from UMWA, Local 1501.

MR. KNISLEY: I don't want you to panic. I'm not going to read all of this.

Good morning. My name is Robert Knisley. I'm an underground coal miner, employed at Consol, Number 95, Robinson Run Mine. I have 25 years experience and it's all at this location. My mine is represented by the United Mine Workers of America and I hold a position on that local's health and safety committee, and I've held that position for 15 years.

I thank you for the opportunity this morning of addressing you. I can't tell you how many times I and other rank and file miners have stood before such panels in the past. We have stood before men and women who, in my opinion, have listened to our remarks with deaf or, in many cases, an unsympathetic ear.

It appears that there are real challenges in the coal industry. It seems that the laws which protect the men

and women in the coal industry of today are being attacked on many sides. I stand here today and challenge not only this panel, but any panel, which would diminish the standards of health and safety in the coal mines of this nation, that you will meet an unmovable force. We, as coal miners, are resolved to fight any ill-conceived, profit increasing, or safety diminishing plans by the coal companies.

We also put you on notice today that we demand fair and thoughtful treatment by such panels, whose actions directly influence the working lives of the people in the coal industry. Your actions, as well as ours, will be held up to public scrutiny. None of us will any longer have that luxury of getting lost in enmity. We plan to humanize these panels and make the members accountable for the actions that they take.

And even though my remarks so far, I think, have had an antagonistic tone, I don't apologize. But, if you'll allow me, I would like to try to explain. The mine at which I work is located in north central West Virginia, near Farmington. This was a site of a mine disaster in 1968, which claimed 78 lives and led directly to the Mine Act of 1969. The people who died at the Farmington mine paid dearly for the safety protections, which we all enjoy today. They paid with their blood. This is why we will never allow

an assault on these protections for coal miners without a fight.

Oftentimes, it appears that it's a losing battle, but we have remained optimistic. We have not lost heart. Like the small boy locked in a room full of horse manure, who happily digs through this unpleasant mess, we say to you, just as the small boy said, there has to be a pony in here someplace. The bottom line: we won't, and you shouldn't, sacrifice health and safety, because companies tell you the cost of this safety is too high. I say to them and to you: our safety is not for sale at any price.

We now face the challenge of allowing diesel equipment in underground coal mines in West Virginia. And contrary to what you have been told, we do not necessarily disagree with this. What we do demand is that we implement -- excuse me, I lost my place -- what we do demand is that the implementation will grant the high safety and health standards. No longer can anyone afford the luxury of being reactive to the problems posed by diesel. We must find someway to take a realistic look at the safety and health problems and deal with them. I think these kind of gatherings will help this process.

Not forgetting the dynamics of the coal industry today, we cannot escape the realities: diesel poses a real health and safety problem to underground coal miners. Since

there appears to be little sympathy for our concern at the State level, we ask that we be given a fair hearing here. At my mine, we average well over 500 federal citations a year. Many of these violations concern coal dust and ventilation. How can we add additional pollutants into the working atmosphere of coal miners without first demanding that the strictest controls are in place and then demanding that they are enforced.

It seems ironic to me that we have such a cavalier attitude with protecting the very air that miners must breath every day for up to 10 hours, and yet politicians make clean air -- or put clean air at the top of their agenda. At the very least, we must demand that diesel equipment be equipped with the very best filters and also demand that these filters be maintained. To the cooperation of industry, manufacturing, and coal miners, technology has been developed to filter particulate matter from the exhaust of diesel equipment. We must take steps to demand that the filters set a limit for 95 percent efficiency for all underground equipment, whether it be in-by or out-by. We must tailor any standard to afford the maximum protection to coal miners.

We have only to look at your own government documentation to understand the concern of underground coal miners. There exists a real danger to the health and safety

of these miners, when they are exposed to diesel particulate matter. NIOSH and laboratory studies has indicated that it is possible to have 900 of 1,000 coal miners dying of lung cancer after a lifetime exposure to diesel exhaust particulate matter.

Keeping this fact in mind, why has that stated in the preamble to the proposed rule, that the rule would not require light duty out-by equipment to be filtered. This would mean that 2,000 of the approximate 3,000 pieces of diesel equipment in the nation's underground coal mines would be permitted to operate without filters.

I think we all see a problem, one which could be life threatening. We must be realistic when we set the standard for exposure to diesel exhaust particulate matter. Costs cannot be the only consideration. Never again can we ignore a health risk, which could develop into another black lung. Morally, each of us must all do what we can to meet our obligations.

As members of our health and safety committee, we must point out health problems that affect our members. You, as participants in this rule-making process, are bound by law to enact standards which afford us the largest measure of protections. It is unacceptable for you or for us to be guided in our deliberations only by the cost of such protections.

We stand at the threshold of a major change in the mining industry. Rank and file miners are not afraid at the coming changes. We have seen the coal mines go from production levels of 10,000 tons per day to well over 30,000 ton per day. This has been mostly from the introduction of mining methods. The change came with many problems of dust and ventilation controls. These problems were met and, for the most part, overcame when the health and safety of the miners was made priority.

We stand at a unique time in the history of the coal mining industry in this country. We also stand here with some tough choices to make. What kind of future do we want to leave for the future generations of coal miners? I hope that five, ten, twenty years down the road, we can each be proud of the decisions we make today. Future coal miners will hold us accountable. We must be able to look at them straight in the eye and tell them that our actions were motivated by sound, scientific information, and with the desire to afford them the greatest measure of protection, as diesel equipment was expanded in the industry. How could we not hang our heads in shame if we had to tell a future coal miner that there was a time we could have protected his health, but the cost of this protection was too high. God forgive us all if this was ever to come to pass.

And that does conclude my prepared remarks. And I

would like to submit this for part of the record.

I notice -- you notice me clearing this box of -- box down front. What this is is the citations at our coal mine. This isn't 20 years worth, 10 years worth. What you're looking at here is four years worth of federal citations, and that's not even state citations. I don't bring this as an indictment for anybody. It's a visual aid to let you know that we have a real problem in the industry. The reality is that compliance is a real problem. But what -- how much worse would it have been if we hadn't had these standards in place to protect us. And I'd be happy to answer any questions.

MODERATOR TOMB: Thank you, Mr. Knisley. Any questions? I have one question, if you don't mind. Just succinctly, from what you've presented, I think your main point is that the proposal falls short from the standpoint of all equipment needs filtered.

MR. KNISLEY: Yes, sir.

MODERATOR TOMB: That's your main --

MR. KNISLEY: I think if I understood what was presented in the preamble, what was proposed, what we're going to do, we're going to leave two-thirds of the industry, as far as diesel equipment, unfiltered.

MODERATOR TOMB: Okay, that's your point.

MR. KNISLEY: And then what we're going to do,

we're going to try and take care of this problem with ventilation. Well, you know, from my coal mine -- there's a lot of things happening in the industry. Like, my mine has went to three headings. Right now, we have to dump over -- well over 100,000 CFM at the start of the section, so we even have enough minimum air at the face. So, where is this velocity? Where is this air going to come from, with the changes -- other changes taking place in the industry?

MODERATOR TOMB: Okay; fine. Thank you, very much.

MR. KNISLEY: Thank you, sir.

MODERATOR TOMB: The next presenter will be Mr. Randy Bedilion -- did I pronounce that correctly -- from UMWA Local 2300.

MR. BEDILION: That's close. You got it a lot closer than a lot of other people did.

Good morning.

MODERATOR TOMB: Okay. What did I get wrong?

MR. BEDILION: Pronunciation, but my wife --

MODERATOR TOMB: Oh, I'm sorry; okay.

MR. BEDILION: -- she mispronounces it once in a while.

I'm Randy Bedilion from Local 2300. I'm not much of a speaker, I'll tell you that now. We have a --

MODERATOR TOMB: Can you spell your name, please?

MR. BEDILION: B-e-d-I-l-I-o-n. Right now, we have one piece of diesel underground. It's a Brookville locomotive. I'm a mechanic underground and I've done the 100 hour test. This piece of equipment, even with the filter system that's on it, which I think -- my first point is, it's a must. Anytime we've got a piece of diesel underground, I think it's a must that we have this filter system on it.

Even with the filter system on it, we've had -- the fumes of the heat off of it, or whatever, we've had people get sick. I don't think ventilation is an answer. We've got a pretty competent mine, as far as management. This is the last three years ventilation only. Citations we have had written from MSHA. I've traveled a lot with MSHA's inspectors and we're at a point where, in our mine, ventilation, it's a must, I mean, but as far as the answer, I don't believe in that. We've had so many just breakdowns in the system.

As far as the filtration, if we had anything less than what we've got now, at least 95 percent, I think that would be like a fall back. As far as the safety and health of my brothers and sisters, I don't think that would be -- the answer is filters. We've got to have the filters. This is the bottom line.

MODERATOR TOMB: Okay. You have any questions?

MR. HANEY: How frequently do you have to change the filters?

MR. BEDILION: The air filters? You're talking the air --

MR. HANEY: The exhaust filters.

MR. BEDILION: The exhaust filters, I would say every -- I think it was like every fourth or fifth 100 hour test.

MR. HANEY: Okay. And about how long does it take to change those filters?

MR. BEDILION: Probably 20 minutes.

MR. HANEY: Okay, thank you.

MR. SASEEN: Did you -- did I miss, did you state what mine you --

MR. BEDILION: Cumberland mine.

MR. SASEEN: Cumberland, okay.

MR. BEDILION: It's out in western Pennsylvania.

MR. FORD: Would you, by any chance, know the purchase price of installation to put that filter on that piece of equipment?

MR. BEDILION: No, I wouldn't. I know it's -- I know it's costly, but it's not worth our lives, you know.

MR. FORD: Sure.

MR. BEDILION: We're a lot more priceless than what that stupid filter system is.

MR. FORD: All right. Are you the one in charge of maintaining that filter like on an annual basis?

MR. BEDILION: Not myself, personally, all the time. I mean, we have other mechanics underground that are trained, you know, for the service -- the 100 hour service.

MR. FORD: Okay. Can you talk about what is involved in maintaining that filter on like an annual basis, I mean, besides just changing the filter?

MR. BEDILION: In maintaining?

MR. FORD: Yes.

MR. BEDILION: As in what matter?

MR. FORD: Keeping it running in the best efficient shape that it should be running.

MR. BEDILION: The 100 hour service, the diesel particulates are checked visually. I mean, you know, whenever -- whenever the 100 hour test is done on it, the gauges, which are on there for back pressure -- there's a multitude of things that just have to be checked with that 100 hour test. But the -- probably in testing the diesel particulate, on the exhaust, that's probably one of the best test.

MR. FORD: I've just got one more question. How much do the filters cost, do you know?

MR. BEDILION: I have no idea. That's a management problem.

MR. FORD: Thank you.

MODERATOR TOMB: I have one question, Randy. How do you -- you said you tested for the particulate, is that just a visual observation?

MR. BEDILION: No. The instrument -- I've been trying to think since last night what the name of that instrument is -- that is put on the exhaust and -- it's carbon monoxide is what it's testing for.

MODERATOR TOMB: Oh, okay.

MR. BEDILION: Because, it tracks the same thing as, you know -- the same way as --

MODERATOR TOMB: Yeah, okay.

MR. BEDILION: But, I can't think of the instrument, but the -- in the 100 hour test, there is an untreated check on the exhaust and the treated check with the exhaust.

MODERATOR TOMB: Okay.

MR. BEDILION: And as far as the instrument, I can't think of the name of it now.

MODERATOR TOMB: Okay. Well, I thought it was particulate you were looking at. That clarifies it when you said it's CO.

Okay, one more question -- just one more: When that filter was put on, how did the diesel mechanics, in your mind -- how were they trained in learning how to keep

that filter -- I mean, that system maintained? Did like a manufacturer come and put the system on and then also gave training?

MR. BEDILION: Yeah.

MODERATOR TOMB: Or did you have to go out and the mine paid for the training?

MR. BEDILION: No. There was an eight hour operator's training that was given to us. And then the maintenance people, which is myself, I'm a mechanic, we were given the additional eight hours. And we had a guy from Brookville, which manufactured the diesel. They came down and schooled us on the service of the machine.

MODERATOR TOMB: Okay. So the total hours of training, I'm confused, was 16 hours?

MR. BEDILION: Yes, sir.

MODERATOR TOMB: And all of those were given by the manufacturer?

MR. BEDILION: Yeah.

MODERATOR TOMB: Okay, thank you.

MR. BEDILION: Do you want these?

MODERATOR TOMB: Yes, I'll take those. Thank you, Mr. Bedilion.

All right, that limits the 30-minute time for the UMWA. And what I'd like to do right now is have Mr. George Ellis from Pennsylvania Coal Association make his

presentation.

MR. ELLIS: Thank you. Good morning. May name is George Ellis, E-l-l-I-s, and I am president of Pennsylvania Coal Association. With me today are members of PCA's tech committee -- safety committee, excuse me, who will help answer any of your questions following my testimony. These individuals include: Bob Dubreck, who is vice president of operations with Tanoma Mining Company and he also serves as PCA's representative to the technical advisory committee on diesel-powered equipment, which was created under the Act, 182 Pennsylvania law; also, John Galleck, who is manager of safety with Cypress Emerald; Larry Patts, who is assistant to the vice president for safety and Consol, Inc.; and Henry Moore, with Buchanan Ingersoll, who serves as PCA's counsel on safety matters.

PCA is a trade association, organized and operating under the laws of Pennsylvania, representing both surface and underground producers of bituminous coal in Pennsylvania. Our members produced over 75 percent of the coal annually mined in Pennsylvania and over 90 percent of the coal mined by underground methods. We also represent associate members companies, including equipment manufacturing companies and other organizations that serve the mining industry.

The intent of this rule is to establish new health

standards for underground coal mines that use equipment powered by diesel engines. PCA member companies have a substantial interest in the outcome of the proposal, both in terms of safety and reducing worker exposure to high concentrations of diesel particulate matter and creating a feasible regulatory program that is conducive to the use of diesel engines in underground coal mines. We, therefore, appreciate this opportunity to comment.

Coal supplies nearly 60 percent of the electricity generated in Pennsylvania. At the same time, deep coal mines in the Commonwealth are a major industrial user of electricity, to power everything from rail-bound trollies for carrying men, to conveyer belts, continuous mining equipment, and other heavy machinery. But sole reliance on electric-powered equipment in deep mines to unearth coal came at a price. This was especially true for Pennsylvania underground mine operators who, prior to 1996, were unable to take advantage of the power, mobility, flexibility, and safety benefits of using diesel equipment at their mines, as an alternative to electric-powered equipment.

While diesel-powered equipment gained popularity in underground mines nationwide, its use in Pennsylvania’s bituminous mines was precluded by a de facto regulatory ban, putting Pennsylvania operators at a safety and competitive disadvantage with mine operators in other coal producing

states that were allowed to utilize such equipment. Diesel usage steadily increased outside Pennsylvania over the past 20 years, with approximately 3,000 units now operating in underground coal mines.

Why the trend to diesel from traditional electric- or battery-powered underground mining equipment? The answer is simple: safety and competitiveness. From the safety standpoint, diesel has reduced the risks attended with the use of electrical equipment by eliminating the need for trolley wires, trolley poles, and trailing cables. Injuries and accidents, like shocks, burns, and fires, are minimized. The additional injuries resulting from being struck by trolley pulls or tripping over trailing cables are removed from the mine and work place. Indeed, a 1984 Penn State University study presented at a Society of Mining Engineers meeting in Denver, Colorado, concluded that many accidents could have been prevented through the use of diesel equipment, which provides a significant potential for improved mine safety.

In support of its proposed rule for diesel-powered equipment, MSHA also recognized the safety advantages of diesels, issuing the following statement in the initial impact assessment and regulatory flexibility analysis in October of 1989: "MSHA reviewed its data files to determine whether there were any accidents, other than fires, that

would be considered unique to diesel-powered equipment. Fatality and injury abstracts from 1987 through ’89 were reviewed for the 116 underground coal mines using diesel-powered equipment in 1988. Of these, there were no injuries unique to diesel-powered equipment that occurred in 1987, there were only three injuries unique to this equipment that occurred in 1988, and there was only one injury unique to the equipment that occurred in ’89."

MSHA also acknowledged, in promulgating its final rules on approval and safety requirements for diesel equipment, that diesel-powered equipment does not have the inherent electrocution hazards of the electric-powered equipment. Also, according to MSHA’s electric hazard awareness program, electrocution comprises about eight percent of the fatalities in mining, and between 1970 to 1986, there were 102 fatalities from electrocutions in underground mines. Trailing cables, trolley wires, and mobile electric equipment accounted for 49.9 percent, or almost half of these fatalities.

Also, a 1994 Bureau of Mines report by Temco and Cassel reported that hall entries were the most likely locations for fires that resulted in fatalities; and that between 1970 and 1989, trolley wires were directly responsible for 40 of the 82 hall entry fires. In fact, the Matheys mine, a major southwestern Pennsylvania underground

mine, has experienced three fires as a result of trolley wires, two of which caused the mine to be shut down for a substantial period of time.

Use of diesel equipment obviously reduces or eliminates these risks and provides the versatility and flexibility to reduce the risk from other hazards, such as material and large equipment handling. Diesel-powered equipment also has a number of productivity advantages and operational benefits over electrically-powered equipment. The use of diesels underground promotes more productivity than electrical equipment, owing to its greater safety, power, mobility, and flexibility.

Diesel use does not restrict the mining plans or mining cycle, because operations are not hampered by cable length or time consuming power moves. Diesels provide greater flexibility in underground travel routes and make equipment moves from one area of a mine to another more efficient. Compared to battery-powered mining equipment often used in smaller underground coal operations, diesels can haul coal more efficiently over longer distance, provide more power to mine coal, and eliminate time consuming battery change-out time. Moreover, because of its flexibility, the use of diesel equipment for handling supplies and other materials reduces the number of material handling injuries.

Diesel-powered supply equipment, like mining systems in recent years, provides the mine operator with another tool to compete in today's coal market. PCA has long believed that this tool should be available to Pennsylvania operators. It was against this backdrop that PCA sought to pursue a legislative remedy in the 1995-96 Pennsylvania legislative session that would allow for diesel usage in the Commonwealth, without compromise to health and safety in the workplace.

Prior to 1996, only three coal producing states -- Pennsylvania, West Virginia, and Ohio -- did not allow diesel equipment to be used in underground coal mines. Unlike the other two states, the Pennsylvania mining law did not contain an absolute statutory prohibition against the use of diesel combustion engines in underground coal mines. Under the prior Pennsylvania mining law, diesel engines would be permitted, provided the request for such equipment was approved by the secretary of the Department of Environmental Protection. However, despite requests made by a number of Pennsylvania mining companies to use diesels, they were never approved by the secretary for various reasons. So, in effect, we had a regulatory ban on the use of diesels.

At this point, I want to clarify for the record two points relative to the Pennsylvania law explained in the

preamble to this proposal that may be misconstrued by the reader. The first is the reference on page 17503, which implies that the Pennsylvania law had banned the use of diesels. There was no statutory ban in Pennsylvania.

Also on the same page, the vehicle for the Pennsylvania diesel law is identified as Senate Bill 1643. This is also wrong. The correct cite is House Bill 2828. While this last point may seem unimportant to some, I can assure you that pride of authorship is not viewed as a trivial issue among Pennsylvania legislatures.

The last Pennsylvania coal company to submit an application under the old Pennsylvania law for use of diesel engines was the Cypress Coal Company, which operates two underground coal mines in Green County, Pennsylvania and in Cumberland. Cypress filed a diesel emission's management plan with the department on October 23, 1995. This submission was also presented to the UMW locals at both mines and the UMWA international representatives. Cypress and the union negotiated the content of the diesel plan.

In early January, 1996, the UMWA submitted a counterproposal to Cypress, almost 100 percent consisting of the Cypress plan, but written in statutory language. Although PCA knew of the ongoing negotiations with the UMWA, since it was an isolated occurrence that involved just a regulatory use of diesels by one company, we were not

directly involved. But, at this juncture, since the playing field was elevated to a legislative point, Cypress formally brought the issue to PCA for its consideration, since it became an industry-wide issue. Thereafter, the negotiations were between PCA and the UMWA. About 10 months later, the bill allowing the use of diesel-powered equipment was signed into law as Act 182 in 1996.

At about the same time the Pennsylvania diesel bill was becoming law, MSHA issued its diesel-powered equipment final regulations on October 25, 1996. Please keep in mind that the parties in Pennsylvania were not privy to the contents of MSHA's final rules, at the time of negotiations. Act 82 contains the most stringent diesel particulate emission standards in the world. Its requirements exceed those proposed in the MSHA draft rule. By not knowing the direction in which federal regulators were headed on this issue, Pennsylvania now faces the possibility of having State program requirements exceeding federal standards. If this occurs, Pennsylvania operators will be essentially troubled by the same competitive imbalance that they faced concerning diesel uses prior to 1996.

PCA hopes to address, in concert with the United Mine Workers of America, our disadvantageous competitive position with the Pennsylvania legislature in the next

session. Our purpose today is to convey to you the problems that Pennsylvania operators are encountering with the Pennsylvania law and to strongly caution against using this law as the basis for a national standard.

Act 182 specifically addresses diesel particulate matter. The State did not set a limit on the exposure of miners to DPM, nor did it establish a limit on the concentration of DPM in the deep coal mines. Rather, they approached the issue by imposing controls that would limit DPM emissions at the source.

First, all diesel engines used in underground coal mines in Pennsylvania must be MSHA approved engines with an exhaust, emissions control and conditioning system that meets certain tests. Among these are DPM emissions from each engine no greater than an average concentration of 12 milligrams per cubic meter of air, diluted by 50 percent of the MSHA approved plate ventilation for that diesel engine. In addition, any exhaust emission control and conditioning system must include a diesel particulate matter filter capable of an average of 95 percent or greater reduction of DPM emissions. The law also requires the use of an oxidation catalytic converter.

Thus the Pennsylvania statute envisions the use of high-emitting engines and then the use of after-treatment devices that significantly reduce what particulates are

emitted from these engines. The Pennsylvania law also has a number of other requirements to encourage the safe use of diesel-powered equipment. Many of these parallel the requirements in the MSHA proposed rule. Like MSHA's requirements, they, too, can result in reducing minor exposure to diesel particulate, for example, regular maintenance of diesel engines by qualified personnel and equipment operator examinations.

The requirements in the Pennsylvania law take into account the need to maintain the after-treatment devices required to control DPM. Unfortunately, since the Pennsylvania law was negotiated at a time when there was no federal rule and was based on limited data and experience, it's become so restrictive that it actually discourages the use of diesel engines. Furthermore, some of its requirements may not be realistically obtainable. In hindsight, the 95 percent filter requirement on all diesel engines is too tight a standard and does not allow for the integration of other components to enhance the system.

Among the major problems which we've identified with the Pennsylvania law are: (1) implementation of a 95 percent filter efficiency on all diesel equipment relative to the reduction of DPM is not currently possible on a consistent, repeatable basis. Only one manufacturer proposes to have such a filter and its performance has not

been measured over a long period of time. Reliance on the standard is also an impediment to cleaner fuel and cleaner engines. Ironically, the filter works best with less cleaned engines and fuel. This is a point conceded by the manufacturer. As you get cleaner engines and fuels, the filter may not meet the 95 percent standard, since it is easier to reduce the amount of particulate on an engine producing a greater amount of particulate than on an engine that runs clean. Using this standard, really, is a deterrent to new technology or cleaner engines, because manufacturers recognize the inherent technical difficulties of reducing particulate from engines that already run clean.

The second concern is reliance on a .12 standard, as we believe it's not realistic. There is no existing system that has repeatedly met this standard and which has been in use for any significant period of time.

Finally, out-by diesel equipment, as with out-by electrical equipment, should not be subject to surface temperature controls. Temperature limitations preclude the use of certain type of filtering systems, which would also effectively reduce DPM. Also, the ISO eight test does not appear to be representative of normal operation of diesel engines in an underground mine and a different test may be needed.

Perhaps the best illustration of the shortcomings

of the Pennsylvania law is the fact that after being in effect for almost two years, there are only two diesel-powered 2010 locomotives operating in Pennsylvania underground mines at this time. The incentives to have more diesel-powered equipment are the safety and productivity aspects of diesel equipments. That's what I said prior.

Recognizing that these goals should not be achieved at the expense of the miner's health, the coal industry in Pennsylvania has not grasped the opportunity to implement the use of diesel equipment, because of the stringent nature and unrealistic parameters of the Pennsylvania law. This is unfortunate and not an intended outcome of Act 182. To derive the many benefits gained by the use of diesels, PCA supports revisions to the Pennsylvania diesel law. During the next legislative session in Pennsylvania, we intend to sit down with the UMW to determine if we can come up with a unified approach to refine the law to make it more realistic and usable, without adversely affecting the worker's health.

The diesel bill signed into law in December of '96 was essentially based upon the use of the dry systems technology after-treatment control device. But, it also incorporated many aspects of an overall diesel emissions management plan, such as clean engines, fuel quality, and maintenance requirements. By recognizing these other

emission management concepts, the Pennsylvania diesel law recognizes and implements the concept of an integrated approach. PCA now views the additional requirement of a 95 percent efficiency filter as unnecessary and prefers that it be replaced in any new legislation with the integrated approach concept. As alluded to earlier, the Pennsylvania law and the MSHA proposed rule need to create the proper incentives to encourage more, not less, diesel-powered equipment usage in underground coal mines, without placing the miner at risk to health impairment. Again, we will continue to work with the UMWA on achieving these goals in Pennsylvania.

Based on Pennsylvania's experience with this issue, we recommend that any federal rule on diesel-powered equipment consider the following: First, as an alternative to the proposed 95 percent emission reduction requirement, adopt an integrated system. It involves a combination of measures, including a practical laboratory DPM standard and various options on how to effectively meet the standard. These options would include cleaner burning engines, lower sulfur fuel, after-treatment devices, ventilation, and training. If an integrated approach is not adopted, any incentive to stretch and improve technology towards the use of cleaner diesel engines will be absent. Adoption of a filter rule only discourages the technology.

Second, any regulation should not impose additional future requirements. To require a DPM filter at a 95 percent efficiency in two years may be unrealistic, since there are no guarantees that such technology will exist. Moreover, an integrated system will create a better environment for the workers, rather than "a dirty engine," with a 95 percent efficiency filter. Equipment manufacturers are finding it nearly impossible to meet a 95 percent filter efficiency at a .12 DPM standard. The goal of any rule or legislation must be to reduce worker exposure to DPM levels, while providing the operator with the ability and flexibility to meet that goal through the use of an integrated system. Finally, maintain the current regulatory requirements between heavy and light diesel-powered equipment.

PCA thanks MSHA for its opportunity to present testimony and we'd be happy to try and answer any questions. As I told you before the start, I will be submitting these comments in a more refined packet.

MODERATOR TOMB: Thank you, Mr. Ellis. Any questions?

MR. SASEEN: Mr. Ellis, the two diesels, are they the same engine -- the two machines, do they contain the same engine?

MR. ELLIS: I'm going to let John Galleck answer

that.

MR. GALLECK: George, yes, they are.

MR. SASEEN: Do you know which engines they are?

MR. GALLECK: CAT engine 3306. They're all -- both locomotives are duplicates. They're exactly the same.

MR. SASEEN: It's a 3306 CAT engine?

MR. GALLECK: Yes, it is.

MR. SASEEN: Okay. You mentioned that -- what you called the "practical lab standard," can you offer -- you said in lieu of the ISO 8178, is there a -- is there some data you can present to us, as an alternative?

MR. GALLECK: Anybody else want to answer that one?

MR. PATTS: Yes, Larry Patts, and I think we'll hear some testimony further on it in the hearing here today, that will suggest a practical lab standard and there will be comments filed to the rule-making before the comment period closes on a practical lab standard.

MR. SASEEN: Can you share with us, the committee, the data on how you -- the data that was used to meet the 95 percent filter to the 3306 and also how you met your .l2? Can that be --

MR. GALLECK: I believe that data will eventually be submitted through other sources.

MR. SASEEN: Okay, thank you.

MR. HANEY: Do you have any comparison between cost to the locomotive that you have with the dry systems and the same locomotive without the dry systems?

MR. GALLECK: Bob, I would have only just the general pricing differential. But, I couldn't say that that's accurate, because, obviously, Brookville's pricing through us may be more beneficial to us, since we were providing them their first venture into Pennsylvania. So, I'd like to believe we negotiated a tight price. But, you're looking at probably in the low 30's -- for an additional system, 25 to 30,000, depending on all the add-ons and what all there is involved with Pennsylvania, keeping in mind Pennsylvania had other standards that may not be necessary under federal standards.

MODERATOR TOMB: Do you know of any other -- do you know how many filter systems have been tested, other than -- are there other filter systems that have been tested and have failed? Or are these the only two that ever been tested?

MR. DUBRECK: There is a problem that we have with the 95 percent efficiency on the filter. I believe, in a larger degree, even the union would agree with this. What you've got is this -- you know, we're in a difficult situation here, you are also -- nobody knows what the DPM standard should be. Anyone in here that can tell me or you

that they do, I don't believe that. I don't believe it's scientific.

We're all engineers in here. We're all intelligent people. There hasn't been enough research done on it. I sure as heck don't know what the DPM standard should be. You know, metal or non-metal, they tell me .4 and, you know, .164 here, NIAS might tell me .15, Pennsylvania said .12. I don't know what that standard is. I think it's very important that the health and safety of the miner be protected. But at what standard that is, I don't know. I don't think anybody knows.

When you come -- if you had a DPM standard and you have the leeway to reach that standard, then you can use engineering controls and other methods, such as engines, after-treatment systems, fuels, training, maintenance, to meet the standard. But, if the federal law sticks to a 95 percent efficient filter, I think you're making a tremendous mistake.

MODERATOR TOMB: That wasn't my question, though.

MR. DUBRECK: Okay.

MODERATOR TOMB: My question specifically was: You have two filter systems, I understand, that have been approved and are in use, right? Have there been other ones submitted for approval that haven't been approved?

MR. DUBRECK: No. What you got into is the

original engine was tested in WVU, with the DST system, an MWM engine, and it was 95 percent efficient filter, okay. The 3306 PCAs that Cumberland used, by engineering methods and filtering manufacture data, the TAC committee approved that engine with that filter and that system for underground use, because we felt it would meet the .12 standard, okay.

It hasn't been in test for any long period of time. It hasn't been in use for any long period of time, okay. What happens when you meet that standard of a 95 percent efficiency, it cuts out all future technology. That filter will not work. If you're going to a new 3306 cleaner engine, that filter will not meet 95 percent. So what you've done now is, there's no hope for us ever to get to cleaner engines. There's no hope for us ever to get to cleaner fuels, because nobody, to my knowledge, with cleaner engines and cleaner fuels can meet 95 percent, okay.

We've had manufacturers come to us --

MODERATOR TOMB: It still doesn't answer my question. There's no other -- nobody has taken just a paper filter and put it on the end of a scrubber and tested it?

MR. DUBRECK: No.

MODERATOR TOMB: Okay.

MR. DUBRECK: Well, we've had --

MR. ELLIS: At least for application in Pennsylvania.

MODERATOR TOMB: Pennsylvania, okay. That's my question.

MR. DUBRECK: We've had other people come to us with different technologies that meet a 91 percent filter efficiency at a .08 standard. Yet, we cannot approve that, because it doesn't meet the filter efficiency. You will get into the same situation in federal law, if you stick with that 95 percent filter efficiency.

MODERATOR TOMB: Okay. Let me -- I'd like to ask another question. Can the .12 be met? I guess from what you just said, it can. The .12 can be met or even lower can be met, using the combined technology?

MR. DUBRECK: Yes, to the best of my knowledge.

MODERATOR TOMB: Using a 90 percent filter and cleaner engine and doing all these other things, you can get down to below the .12 --

MR. DUBRECK: Well, two were approved at .12. We have -- a manufacturer came to us just last week, I don't have the data in hand, but his testing in West Virginia, he said he could meet a 91 percent and a .08 something. I forget the exact -- I mean, what ought to be important, though, is what the guy is breathing. That's what's important. Electricity in these lights, we really don't care how it gets here, just so it's here. The miner underground, he cares what he's breathing. Surely, you have

to have leeway to meet that in an integrated approach or you're going to force him to not have the best possible situation.

MR. GALLECK: Let me clarify one other point.

MODERATOR TOMB: As you speak, could you clarify for the record who is speaking, so --

MR. GALLECK: Oh, I'm sorry. This is John Galleck, Cypress Emerald. One clarification is that the Pennsylvania law also includes a 50 percent of the ventilation rate of the MSHA standard for that engine size and, obviously, that was made prior to. As George said earlier, we were not aware that you were changing the law to part seven. So, our numbers, just for clarification, like Bob said, we met a .12 at 50 percent of the old part 32 standard.

MODERATOR TOMB: Okay.

MR. ELLIS: This is George Ellis. I'm not quite sure, in response to your question, Mr. Tomb, that any of us here can definitely say that cannot any other approach meet a .12 or a less than .12 standard.

MODERATOR TOMB: From what your presentation has sort of precluded, that you couldn't even get down to -- it was very difficult to meet the .12, because you have got a 95 percent efficient --

MR. ELLIS: That's right.

MODERATOR TOMB: -- you're having trouble.

MR. ELLIS: That's right.

MODERATOR TOMB: And then -- I'm sorry, your name, sir?

MR. DUBRECK: Bob Dubreck. I'm with the TAC committee.

MODERATOR TOMB: Okay. When you were talking, and he mentioned that he could get down to .08, 90 percent --

MR. DUBRECK: And that's on a smaller engine. The net result is, what does a person breath? What is he going to see in his lungs? And surely, the operators has to have the ability to use the means available to him, to reach that goal. That has to be the ultimate goal, what does the guy breath. It has to be, not a 95 percent efficient filter.

MR. SASEEN: Bob, just when you said that the system had a 91 percent filter and a .08 lab standard, was that with part 32, 50 percent air or the part seven name plate air?

MR. DUBRECK: I'm not certain.

MR. SASEEN: I'm sorry?

MR. DUBRECK: I'm not certain.

MR. SASEEN: Okay.

MR. DUBRECK: It was a small piece of out-by equipment, with a subfilter and some other mechanisms on it. Now, you now -- and when we went to New York, up at the

Climber, you know, you heard guys up there talk about ceramic filters and they can come up -- you know, and then they'd see the 302 temperature of the Pennsylvania law.

So, what you've got to watch is that you don't prevent yourself from down the road using the best technology, the cleanest engines, the cleanest fuels. And the net result again has to be, what is that man in the coal mine breathing? That's the end result. And that's what we all got to look at in any legislation. And if we preclude by legislation, somewhat like has happened in Pennsylvania, that there's no diesels can be used in the mine.

I've got on that committee, because I wanted to put diesels in Tanoma. I had none, because I don't know of anything that I can put in there that meets the statutes. But, I do remember fellows what trolley wire is. Guys in this room remember what trolley wire is, and equipment fires moving equipment, the wire on the bottom and evacuating people. And I think you have to keep that mind. I think diesels are very important, as long as the health and safety of the miner is protected, in moving this industry forward versus the old systems existing.

MODERATOR TOMB: Okay.

MR. SASEEN: Bob, can -- and I know you remember the Pennsylvania technical committee -- can you supply our committee the data that was used to approve that engine, to

meet the Pennsylvania? Now, I know -- I'm asking you as a member of the PA technical committee, versus TAC.

MODERATOR TOMB: Are you talking about the Cypress --

MR. DUBRECK: The Brookville proposal?

MR. SASEEN: Right. Can that be made available to this committee?

MR. DUBRECK: I don't know why not.

MR. SASEEN: Okay.

MR. DUBRECK: From my personal point of view, I don't know why not.

MR. SASEEN: Well, if you can, we'd be interested.

MR. DUBRECK: Yes.

MR. SASEEN: Thank you.

MR. DUBRECK: I'll see if I can do that.

MR. SASEEN: Thank you.

MODERATOR TOMB: Thank you, very much.

MR. GALLECK: Would you guys mind -- this is John Galleck, again -- if I just clarified a couple of points that were made earlier --

MODERATOR TOMB: No, go ahead.

MR. GALLECK: -- for one minute? I think there is a mistake on a filter life. Our typical filter life for the DPM filter is 50 to 70 hours, just a clarification point, rather than putting it in a written record later.

MODERATOR TOMB: Instead of the 500 that was --

MR. GALLECK: Yeah. Okay, thank you.

MODERATOR TOMB: I know some people are standing up. Maybe it's a good time to take a 15-minute break. But, please be back here exactly 10 to 11:00. Thank you.

(Whereupon, a brief recess was taken.)

MODERATOR TOMB: Before we get started, one of the panel members would like to ask a question of the last speakers. I'm not sure which one he wants to ask a question to, but he would like to ask a question to clarify a point.

MR. SASEEN: Mr. Galleck -- I think our bladders kind of overruled my thinking process here -- could you give me what the -- do you know what the cost of the filter is on the Brookville?

MR. GALLECK: Individual filter?

MR. SASEEN: Individual filter, when you change it.

MR. GALLECK: Roughly, $80 a filter.

MR. SASEEN: I'm sorry?

MR. GALLECK: Roughly, $80 a filter.

MR. SASEEN: Eighty dollars a filter. Is that specific to that system?

MR. GALLECK: That's the only system we have, George, so I would suspect it would be a sliding scale, depending on the size of it and what engine application it

would go with.

MR. SASEEN: Thanks a lot.

MR. GALLECK: You're welcome.

MODERATOR TOMB: Thank you. Alright, our next speaker will be Mr. Chris Hamilton from the West Virginia Coal Association.

MODERATOR TOMB: Good morning, Mr. Chairman, panelists. I am Chris Hamilton, vice president of the West Virginia Coal Association. Today, I appear before you as a representative of the West Virginia Diesel Commission. I am joined by Dr. Pramod Thakur of Consolidation Coal and Mr. Ken Perdue of Piston Coal, along with myself, comprise the industry or management contingent of the Commission.

Before I proceed, I would like to, on behalf of our group and the West Virginia Coal Association, concur with the initial comments made by Mr. George Ellis, not necessarily all the exchange between the panel and members of Mr. Ellis' contingent. But, we do concur with his initial comments regarding the competitive advantages, the safety advantages, and the economics, and general aspects and advantages of operating diesel equipment. We are one of the states here in West Virginia that heretofore has prohibited the use of diesel and we anxiously await the days that we can be on the same level playing field with the rest of the nation. We urge you to accelerate the finalization

of these final -- of these proposed rules. We believe that that will aid our cause, as well as the other states that currently don't use diesel.

I respectfully disagree with Mr. Ellis, with respect to the competitive -- the point of competitive disadvantage that he feels that he is currently in. As the State of West Virginia, we just assume men should not tinker with that and send more and more production south of that Pennsylvania border to West Virginia.

Over the past 18 months or so -- I already hear the hecklers; I probably ought to proceed. Over the past 18 months or so, we have been involved here in West Virginia, in a state initiative, a process very similar to MSHA's current rule-making subject to today's hearing. As representatives of the West Virginia Diesel Commission, we have also been working towards comprehensive rules governing the use of diesel equipment underground coal mines, including the establishment of performance-based standards for the control of diesel particulate matter and emission control and conditioning systems.

We welcome this opportunity to share our findings and research with MSHA. We believe our experiences to date are both enlightening and scientifically based and will serve as a meaningful contribution to this proceeding and to this process. We also look forward to forging a partnership

with MSHA on this topic, as a commission, in years to come, as we work to continuously improve our state rules, as new technologies are developed, which prove effective. We view the current task before us as a preliminary or initial one, to set to bar on a reasonable and practical level, so then we can continuously research, update, and revise those rules, as new technologies are proven effective. We hope that MSHA shares that goal and premise, as well.

Our shared goal of providing maximum health and safety protection for miners with an acceptable, feasible cost in technological parameters is now in sight. And we submit to you that that can be accomplished, while optimizing operational flexibility, by allowing mines to take full advantage of existing complex ventilation systems, existing engineering controls, along with existing and new and developing technologies.

Before proceeding, some background may be in order. On April 10, 1997, the West Virginia legislature enacted the West Virginia Diesel Act, thereby creating the West Virginia Diesel Commission and setting forth an administrative vehicle to allow and regulate the use of diesel equipment in underground coal mines here in West Virginia. The Commission is specifically charged with developing rules and regulations governing diesel usage, which will address everything from equipment testing and

approval, to all the various safety aspects and test monitoring found in MSHA's existing rules, as well as deciding which diesel units, if any, should be equipped with particulate filters. The Commission's rules are also to include performance standards for particulate filters, stated as an average percentage for the reduction of DPM.

To serve as a resource for our efforts and to guide the Commission to meeting its mandate, West Virginia University has been appropriated over $150,000 by the West Virginia legislature to test diesel exhaust controls, as well as an array of diesel particulate filters. The work of the University is intended to provide the technical support and data necessary for the Commission to make decisions, which are grounded in scientific fact, and to also assist us in driving at appropriate levels of collection efficiencies and related standards for emission controls and conditioning systems. Dr. Thakur, with me today, will discuss some of the work of the University and put that into practical application. In addition, a copy of the WVU work plan and study results will also be submitted with our written comments, following today's hearing.

Allow me to point out, however, that the University tested a total of four different engines and an assortment of configurations of available control devices, including the widely publicized DST system. In fact, I

believe tests were run on approximately 27 different engine filter configurations or thereabouts. The range of collection efficiency of ceramic filters and oxidation catalysts combined fell between a low of 65 percent and a high of 78 percent. The highest collection efficiency obtained using the ISO's eight-mode test was 81 percent, and that was the second of a series of tests that was conducted with the DST system.

The 95 percent requirement proposed by MSHA was not achieved by any of the configurations: ceramic filters, DST system, oxidation catalysts with filters, catalyzed filters, filters and traps, and a variety of orders and configurations. Of all the tests that were run, the highest that was achieved there was 81 percent. We're submitting that document, the work study, the plan, the technical analysis, and background for your use and examination, as you continue your mandate of finalizing these rules.

Although the Commission, itself, has not finalized its rule-making, the industry representatives have developed an approach worthy of consideration by MSHA. This approach represents a departure from the across-the-board requirement proposed by MSHA, that all machines used in in-by areas and those which are classified as heavy duty be equipped with particulate filters that are 95 percent effective in the removal of DPM. Based on the tests performed by WVU, this

level of collection efficiency is unreasonably high and is simply not substantiated by reliable data.

MSHA's proposed rule contains several additional fallacies, which are evident to us. First, the rigid across-the-board 95 percent requirement could easily result in varying levels of the volume of DPM emitted from diesel equipment. It is conceivable that one machine with a particulate filter of 95 percent efficiency could yield an overall greater amount of diesel particulate mass than the exhaust of an unfiltered machine. MSHA's proposal also fails to take into account viable options and engineering controls, which would otherwise be available to mine operators to maintain low-levels of DPM in the mine environment and further neglects to consider the unique environmental features of each mine.

Additionally, we have, as previously stated, serious reservations of the 95 percent collection efficiency of MSHA's proposed rule. Frankly, we don't believe it's achievable with available technology.

I would also point out that it may even be a regressive standard, as stated so eloquently by Mr. George Ellis: garbage in, garbage out. If you have dirty engines, dirty fuel, you could easily achieve a 95 percent efficiency with a variety of instruments and devices. As we move towards the next -- the newer generations of diesel engines,

fuel additives, which help decrease overall emission levels, it's going to be harder and harder to sustain those higher percentages in the overall removal of DPM -- garbage in, garbage out.

In fact, we -- the University, and I'll let the report speak for itself, has also done some tests and the original test on the DST, we understand, was done with a higher sulfur-containing fuel that currently is prohibited. When we tested the different fuels at the University that contained a varying sulfur content, there was a fluctuation in the overall results. If I'm not mistaken, again the report will verify, I believe it was on the order of 12 to 15 percent difference in the collection efficiency.

We have a proposal which we'll briefly outline, and Dr. Thakur is prepared to cover it in greater detail than I. But, our proposal, on the other hand, does establish new lab diesel particulate standard. We are proposing a .5 milligram per cubic meter standard, which must be met by all diesel equipment, as the equipment is configured, before approval is granted for underground use. A .5 milligram standard, according to our research, is more realistic, can be defended from a human health standpoint, and is technologically feasible with available control devices.

The term "as configured" is significant, and it is

central to our integrated approach, which is embodied within our proposal. And the term "as configured," as used within our proposal, means each type of diesel equipment, together with all emission controls and conditioning devices, if any, which are proposed for use in any underground mine. And we specify, if any, because I think EPA is driving this issue from the on-road engine design, and we feel confident within a very short period of time, we will see engines alone, very expensive, may not be designed or intended for all the duty cycles and all the workloads that they might be subjected to. But, we think that they will be here, when an engine alone, combined with the fuel and perhaps fuel additives, will result in a clean-burning engine to the -- on the order of magnitude of where we have placed our initial standard.

So, you have to ask what significance is it if it has a filter on it, and further more, what significance is the collection efficiency of the filter, if you're achieving an acceptable DPM level? Based on this in-lab test, all diesel equipment will bear an approval plate containing the specified CFM rate, as equipment is configured to maintain a .5 milligram particulate standard.

This approach recognizes that the control of DPM may be enhanced or adequately addressed with mine ventilation, clean burning engines, or by using higher quality fuel, along with fuel additives. It factors the

specific conditions of each mine, along with the specific type diesel units and their intended application to the regulatory scheme. It also allows mine operators to carefully select and implement the most appropriate cost-effective control technologies among a greater variety of reliable and commercially-available devices. Moreover, it provides for an unprecedented higher level of protection for miners than what currently exists anywhere in the nation, for that matter, the world. We, frankly, view Pennsylvania's standard equivalent to our previous prohibition against using diesel equipment here in West Virginia.

This approach is also consistent with MSHA's integrated approach found in its October 25, 1996 final rule, addressing the approval exhaust gas monitoring and the safety aspects of diesel equipment, which we contend also goes along way, in and of itself, towards reducing miners' exposure to DPM and underground coal mines. It's also compatible with MSHA's toolbox initiative, which advocates the consideration and application of not one, but a variety of appropriate alternatives.

Although we appear today as members of the West Virginia Diesel Commission, the regulatory approach outlined herein, which will be elaborated on by Dr. Thakur, is fully embraced by the member companies of the West Virginia Coal

Association, which collectively account for over 90 percent of the State's 180 million annual tons. The West Virginia Coal Association also represents equipment manufacturers, who are extremely and have been extremely involved in our process and in the formulation of this position.

To summarize, we encourage MSHA to modify its proposed rule by eliminating the across-the-board boilerplate requirement, that all face machines and certain out-by units be equipped with particulate filters capable of achieving a 95 percent collection efficiency. In lieu thereof, we recommend that all -- and heavy duty machines be equipped with emission control devices or configured to achieve a .5 milligram standard and to additionally provide mine operators with alternatives from MSHA's toolbox approach to assist with compliance demands. We would further recommend that particulate filters achieve a minimum collection efficiency of 70 percent, which is consistent with the technical test and data obtained from the West Virginia University project.

As members of the Commission, we look forward to working with MSHA in the future. And at this time, if it pleases the panel, I will turn the podium over to Dr. Pramod Thakur. Thank you.

Dr. Thakur will be using the slide projector. He has a few slides he'd like to share with the panel and

audience.

(Pause.)

DR. THAKUR: Mr. Chairman, members of the panel, my name is Pramod Thakur. That's the last name on the display and it's spelled correctly. But, I have to apologize to Kenny. His name is not spelled correctly. It's P-e-r-d-u-e.

This morning, you heard from the Pennsylvania Commission -- Coal Commission -- Association, I mean, and Mr. Hamilton correctly introduced the subject. We -- all of us, we agree, at least on one aspect, that diesel engines are good for the mine, for safety, as well as for preventing injury. We also agree that the best approach to control the ill effects of diesel, if any, is to take a systematic or integrated approach. I intend to submit to you an alternative scheme this morning, which I believe is perhaps the best approach in the world.

I might add a few things in this regard. My interest in diesel engine goes a long time back. I wrote a piece, this is 24 years back, on exactly this subject, how do you dilute the diesel exhaust emissions in the mines, to keep it below safety levels, or TLV, test limit values?

The Commission -- and I'd like to express my gratitude to the other members of this Commission, Gary Trout, Danny Odell, and Rick Glover. All six of us, we felt

that we would be remiss if we did not create scientific data before we begin to play with numbers or methodology to control DPM, diesel particulate matter, or any other species of diesel exhaust in the mines.

And the Commission, with the help from the legislature and West Virginia University, has been able to accomplish this goal. And I reiterate what Chris said earlier, the data you're going to see today and the approach you're going to see today is unique and, at the same time, without being too modest, the best approach there is. It's better than MSHA. It's better than Pennsylvania. It's better than European, Australian, Canadian. I have been everywhere, talked to everybody. I want to say, in the State of West Virginia, that we have the best scheme that I know of. That's not to say someday, somebody can't do any better. But, today, what you're going to hear from me is by far the best way we can protect our people.

Alright. Why do we want diesel? You heard already, so I go quickly through it. Number one, like George Ellis said, safety in the mines. Diesel engines were introduced in Europe 70 years back for one and only one reason. The mines got deeper and gassy and there was the risk of mine explosion. If you look at the local history alone, the coal company I served had 18 fatalities in the last 24 years, because of trolley wire. My main job is to

get gas out from the mines. And I'm very proud to say that with the help of everybody, including rank and file, we have been able to avoid the incidents mentioned earlier in 1968. With God's grace, we shall keep the mines safe just like that. There is no absolute guarantee, but we'll try our best. That is my biggest motivation for diesel in the mines.

The second thing, I design mine ventilation for a job. Those of you who know, somebody mentioned about three entry system. Trolley wire restricts your air velocity in one entry. You have to regulate the intake to prevent leakage and what not. The net result is reduced quantity of air of the face. Diesel can eliminate that and we can provide much better ventilation at the face, and that is my second safety concern or safety reasoning for introducing diesel in the mines.

Injury prevents on what's covered already, so I'll get away from it. You can carry a 50 pound load better with equipment rather than in hand, and that's all you would save back, especially if you're as old as I am.

Mining remains somewhat an unforgiving environment, like logging or flying or military. And I think by improving productivity -- I look at it like this way, get used to exposure for that kind of environment and, again, safeguard the health of the people and the safety of

that person. Because, I completely agree with the comments made by the rank and file, the life and health of the individual in the mine is perhaps more -- not perhaps -- it is the most important thing for us.

There are some concerns about the use of diesel, and they're very good concerns and I think we should address them, and I intend to. Health effects of diesel: what are they? Let's look at it. If you look at the diesel exhaust, it basically consists of carbon monoxide, oxides of nitrogen, unburnt hydrocarbon. People tell me that DPM gives them running eyes and chokes their throat. DPM has nothing to do with it. Unburnt hydrocarbon is your culprit, sulfur oxides and, of course, DPM.

When you talk about control, you should talk about the entire thing. Although we cannot address all of them, but I just want you to keep one thing in mind: that by trying to control one, you may make the other one worse. For example, from George and Bob and Gene Davis, carbon monoxide, Pennsylvania law demands the reduction to 100 ppm in the tailpipe. It's counterproductive, because if you have that low CO in the tailpipe and you use a catalyzer filter to control it, you have a whole lot more particulate emission. Sulfur oxides go up. What's worse, the oxides of nitrogen can go up, you know. You've got to have your balance, once again, and a systematic approach to control

it.

We're going to talk about DPM only, because we don't have time for other stuff today, and others have no problem. Let me assure you, that we will show they can very easily be controlled by the device we recommend in the State of West Virginia.

Diesel particulate matter, henceforth called DPM, is nothing but solid carbon, elemental carbon. Over that small piece of carbon, you have liquid and other solid hydrocarbons. They are known as -- some of them are known as polynuclear aromatic hydrocarbons. They could be of a nitrate, you know. And these are the things, if they were present in high enough concentration, could damage human health. And our job should be to minimize the concentration of these things to the level that it cannot hurt anybody.

Drinking water has some chemicals, very powerful toxins, but the city supply makes sure that the concentrations are so low that they cannot hurt human health. Sulfate is a big culprit, you know. And our study at WVU will find almost half of the DPM is by way sulfate. So, if we can somehow reduce sulfate, we have a cheap -- a tremendous gain in our efficiency.

So what exactly is the approach? The way we configure -- we use Chris' word, he created it -- we start with clean engines. Now, you hear about the EPA and all

those things that are on highway engines. I wish we had engines like that. I will share with you what I got back from George, MSHA, their numbers. In general, today, the engines we're going to use in our mines, let's say 150 horse engine or locomotives, MWM or GAP 3304 for the second cars, 59 horse engine, or out-by porter buses, 43 horse engines, all these engines typically when we tested them at WVU, and they repeat what MSHA had said. You know, I'm very glad to see an agreement between the two labs -- are generally below .3 grams per bhp hour. If you multiply that by the horsepower of the engine, you're going to get the emission of DPM from that engine per hour and that tells you how clean the engine is. Clean sulfur fuel, .05. That's 500 parts per million.

The Commission insisted, and both sides agree on this thing, that we should provide a protective mechanism called oxidation catalyst or a catalytic converter on each and every piece of equipment -- diesel equipment going in the mines. Adequate ventilation, I insist on it. And we will provide soot filter on heavy-duty large engines which produce more DPM per hour. Whatever comes out with this scheme becomes our ambient DPM concentration level.

Now, earlier, somebody mentioned about what Dr. Riggs talked about the health risks of diesel. If you look around the world and look at the literature, you'll find

half the people say it's dangerous; half the people say, well, I haven't seen any epidemiological evidence. In a situation like, if you cannot come up with a medical standard, it behooves us to have a technical standard. Knowing what we know, looking at things we have, engines, control technology, ventilations, whatever we can achieve -- I agree with Bob Dubreck, that the most important thing is what the guys working in the mines inhale. Well, we've got to minimize it, and that's the key -- I mean, the core of my presentation.

You look at these engines. These are data from Tridelphia and Statistic Lab. They range from .271 to .306.

This is called permissible. The emissions are a little higher in here, because they had to mix one percent methane with it, you know. The numbers, again, range from .193 to .26. There are many other engines. I believe 17 engines. They range anywhere from .19 to .3.

And that's why I say that the clean engine should be defined as anything less than .3 gram per bhp hour sulfur. I'll make a generic statement: the lower the sulfur, the lower the DPM emissions. Once again -- remember, too much of a good thing can be bad. Lower the sulfur, when you go to almost no sulfur, like less than five parts per minute, you lose the lubricity in the fuel. Your engine life maybe significantly curtailed.

We don't have any good data from WVU right now. And Chris, I might as well tell you, they're asking for some more money, so we can continue with the work. That's between you and Rick Glover. But, I'm sure it will influence you to have the -- we should be able to continue with this work. The limit really is that this FT or by-diesel that's almost free of sulfur, they are very expensive. But, we don't have good data yet on them, as to how much good they really do. Engine manufacturers, they ought to tell us what impact that low sulfur is going to have on the valves and the life of the engine itself. Incidently, this fuel, with five parts per million sulfur or less, down to .4, is available at around four times the cost of the diesel that you have today.

Okay. This is really my trump card, oxidation catalyst, you know. We believe -- we, the Commissioners of West Virginia for diesel equipment, believe that it should be an integral part of all coal mine diesel engines. Because what it does -- look at the benefits that you derive out of it. People talk about 95 percent collection of DPM. DPM is not going to kill you today or tomorrow. But, this stuff here, it will kill you in a minute. Why not control that, too? We intend to.

A well-designed oxidation catalyst will do 80 to 95 percent CO reduction; hydrocarbons, which make your eyes

water and throat choke, 85 to 90 percent; even diesel particulate matter, 25 to 35 percent. This is for -- Mr. Chairman and the panel -- this is for the existing equipment. An amount of 14 manufacturers have oxidation catalysts right now. We have tried only three of them. And they, themselves, had met on a scale of one to 10, they are somewhat around six and seven. The position varies depending on whom you ask.

So, there is a scope for improvement. Next week, I have a meeting with Johnson, Mathey, and Deguesse. They claim they can reduce 50 parts per million -- older control, very good. There is hardly any drop -- pressure drop across it. Because you put something at the end of the tailpipe and you have a lot of pressure drop, again, it becomes counterproductive. Sure, you can get 95 percent with something that would choke the engine to death. That's, again, counterproductive. That's not the right thing to do, because it becomes counterproductive.

This thing does not have any pressure drop, so there is no fuel penalty. There is no excessive emission of CO or particulate matter. The liability? Very good. Durability? Over 5,000 hours. How do I know it? Because, we have been using it for 14 years and we know it, in the State of Virginia.

Let me give you a brief outline of certain

filters, what they talk about. And you heard about all kinds of filtration systems, you know. There are two kinds, basically: high temperature and low temperature. In high temperature, there are some paper, except they are not like paper. They're made of bolsilitate or quartz. They are not available commercially.

The longest history we have, again going over the four continents, you know -- Australia, Europe, Asia, and North America -- you have ceramic filters. Hundreds and thousands of them are in use today, as I speak to you, and their performance history is very well known and I'll share that with you. The one problem that this filter system is, it's made of stuff called cardioright. It's ceramic. It's not really hardy. It can't take very high thermal distress. We're trying to develop something based on silicone carbide, they're doing it in New York, and that will be perhaps the ideal answer.

Low temperature filter, you get the exhaust, cool it, and go through ordinary cellulose paper, which you can buy for $80, $250. If you're a partner with the manufacturer -- probably, John, you can get for $80 -- go to another partner, they claim a cost of $140. Well, that's the nature of the world, you know.

Comparing them -- now, by comparing them, I'm not trying to slide one system over the other. I think, just

like Chris said earlier, that people should have total choice to achieve the goal. But, I just want to point out the good things and bad things, whatever you call them now. It's paper filter, cellulose paper, you need a heat extender. It's big, bulky, and very expensive. Almost 20 grand per cost is a heat extender. You don't need a ceramic -- I mean, a heat exchanger for a ceramic filter. Cost: somebody said if you go from like say small engines, like 30 horse to 150 horse, this is the cost of the equipment. Installation will be extra.

Ceramic, $35,000. Size is very large. Large equipment can afford to have this system. There are two manufacturers right now, DSD and -- what's the other one, John Smith -- Flame Tip. Jeffrey is marketing it in this country. Ceramics are small and compact; typically, about six to 12-inch in diameter, six to twelve inch in length.

Maintenance, people claim 70 hours life. It all depends on the duty cycle. I've seen some people change them in eight hours. Ceramics typically last 2,000 hours. Again, these are average numbers. There could be some lower and there could be some higher.

Collection efficiency, based on what I know, it could be variable, depending on which stage of the paper you check: brand new filter, put it in, like after 33 or 60 hours, operating at MWM. Efficiencies go up to 70 percent.

Paper plugs up in 10-12 hours; it then goes up. You want to get 95 percent, I can tell you how. Plug it for 16 hours, so you'll get 95 percent. But is that the way to work? No.

Here, it's constant, 70 to 90 percent. The important thing to note here is that there are some systems that give only 68 percent like you said. There are systems, you heard only give 90 percent. The vast majority of them are in the range of 75 to 80 percent, and that's what I probably claim as the average deficiency for ceramic system. When we design something, we design on that basis, not on either extreme.

Okay. Ventilation we have to have in mines, for a variety of other reasons, other than diesel, such as methane. I don't have to tell you what it does, if you don't have enough air. You all know it already.

I've got some numbers. I have been rightfully accused that I only deal with the large mines, you know. But, these are some average numbers, fellows, which came from a variety of sources, you know. The three that I'm going to consider, I'm going to walk you through with the typical combination of engines. So, what we can achieve with the air we have, with the engine we have, with the control technology that we have, which we can run systematically without worry. What we can really achieve and what exactly .5 in the lab means for the guy in the mine

who is breathing it, you know. So, that's the whole intent of my paper.

Just remember these numbers. In the mines, I believe a well ventilated mine can have 95 in air. In the section -- at the section mouth, you can have 40,000. There are sections with more than 100,000. On an average, that's what you got. And in-by, you have about 20,000. And if these numbers appear too high, you can accuse me of being a little spoiled working for large mines, you know. You can do it, too, and I'm guilty. But, you can modify the numbers. This is just a number.

After doing a lot of forward and backward calculations, we felt, the industry Commissioners, that taking all the mines in the State of West Virginia, large and small, we believe that we can do in the lab 0.5 milligram cubic meter. That was as configured, the engine worked eight hours and the specified amount of airway grown on it, it cannot create more than .5 milligram per cubic meter of DPM concentration.

What do we need to do? Okay. It's a very interrelated thing, you know, and lots of variations are possible. And if you can show me something better than this, then I'll immediately pack myself. But, this is what you can do. In my observation, a catalyst and a catalyzer, all heavy-duty equipment out-by -- I'm sorry, it's defined a

little differently -- but basic criterion here is that when you install this thing, it should be able to regenerate. The temperatures should be high enough -- all diesel engines, small and big ones, if they had to do the cycle, can develop a very high temperature and work successfully. But, in general, in the mine, things above 60, it would probably be able to regenerate with some degree of confidence, you know. I mean, you may have situations there when it would not regenerate, and it creates a problem. But, we put a limit there, that anything above 60, except on cars and locomotive, they'll be able to regenerate. We will provide an oxidation catalyst, simply because we don't want to have that CO and other stuff floating in the air there.

So, if you accept this premise, I'm going to walk you through and show you a number of combination of engines -- oh, one more thing now. This came straight out of my Ph.D. thesis -- I have done this a long time back -- 800:75:50 rule adequate, you know, and I'll discuss with you is more than adequate, you know. So, we propose 100:75:50 rule, which means first engine in similar equipment, 100 percent air, West Virginia name plate, which typically is going to be higher than inside. The inside, I will accept that. The second engine, 75 percent of that. The third engine and fourth, so on, 50 percent of the air.

Now, I have purposely digressed a little bit from

West Virginia producing state, just to see if we provide the mixed amount of air -- I mean, that might not be rational. What is it we can achieve? And that's why I'm slightly on the high side on ventilation and you'll have to kind of forgive me for that, you know. And we applied the model everywhere. In-by and out-by, I believe we should have 100:75:50 rule, whatever we have, as long as it's working.

Let's talk about the typical situation. In the large mine, you have two locomotives at the shaft bottom, six portal busses, and two jeeps. They have a requirement for .5 milligrams, works out to 68,000 CFM. If you have that much air and the engine starts working eight hours that shift, you cannot have it create more than .5 milligram.

And a different calculation --

MODERATOR TOMB: Excuse me, can you wrap up in about five minutes, Dr. Thakur?

DR. THAKUR: Okay.

MODERATOR TOMB: Otherwise, we can take it up for the end.

DR. THAKUR: Alright. This other calculation -- let's skip it, let's go to the next one.

One locomotive, one portal bus, two jeeps, 33,000, again, well within the 45 in there we had.

Next one, please. Let's just skip the next one.

Two separate parts working there, typically about

94 to 100 horse, about 14,500 in air. You have that there.

Next one, please. Calculation -- let's just skip it.

Alright. I said, the question people ask me: If we have an instant figure of .5 milligram in the lab, going to Bob Dubreck's question, what is it that the guys inherit in the mines? I wish we had an instrument that can just pull in the air and say that this is the DPM, you know. We don't have that. There are indirect ways to calculate it, you know, or estimate it -- more like estimate, you know. Look at the cycle. Portal buses and jeeps, the vast majority of equipment in the mines, somebody said about two-thirds, they work only about two hours. In fact, they have been consolidated about 67 minutes per shift. You don't have to be a rocket scientist to figure out the engine can create .5 milligram in eight hours work and if it works only two hours, it's definitely less than .5.

Next one, please. The second safety factor is this -- this was proposed a long time back, 30 years back, by a guy named Holtz and Bob Dolgen, two well-recognized ventilation experts. You may think that engines stays, they'll say, and air is blown on it. That's not the case. An engine is moving all the time. If the head is moving at 200 feet per minute, and the engine is moving at 800 feet per minute, the actual ventilation there -- effective

ventilation is 1,000 feet -- 1,000 feet per minute times the cross-section. And if the cross-section is 100, that's 100,000 air. If they're moving in the same direction, then it's 800 minus 200, it's about 60,000 air, you know. This is how exactly they drafted the -- this is signed. This is a fact, you know. But for -- what you call for approving the deal, they never used this equation developed by Holtz and Dolgen and verified by me in my thesis.

Next one, please. You've got the third 50 factor. Remember, I talked about multiple engine working in the same respect. I have my thesis here, anybody can borrow a copy and see it from Penn State. Actually, on quantity, you need, first one 800 percent; second one, 130; 106 for the third one. Look at the extra air we have provided. What did that do? It lowers that .5 to something lower than .5.

Next one, please. The last, and not the least, is, you might have seen it in your own home, whenever you have a hot shirt coming out from somewhere and you've got cold surfaces, it gets deposited. What I'm trying to say, diesel exhaust, DPM, in particular, do not stay in the air forever. They get deposited on the sides of the airway and when any other object comes into contact.

The net result, fellows -- next one, please; I'm almost done, Tom. The conclusion is that based on the state-of-the-art technology for DPM control and existing

ventilation rates we can achieve in our mines in West Virginia, achievable DPM level, in ISO eight-mode test in the lab, is .5 milligrams. The factors I discussed with you, they indicate that the actual DPM concentration will be much less than .5. And the built-in safety factors compensate for aiding the engines. It is a fact that as the engines get old, that emissions get worse. Of course, we're going to be checking it; good maintenance can avoid it. But, the built-in safety factors take care of it.

The next slide, please. In concluding my topic, if I -- if I did not highlight certain areas where I think improvements are possible, and I would encourage and solicit help from each and everyone who can make these things better, because that will make our mines safe. That will make our workers healthier, make engines cleaner.

With a small market, Mr. Chairman, and we cannot go and demand from TAC or companies that make engines that can give me, say, .2 or .1 range, rather than .3, but if we open the market, open the gate, and begin to install these engines and we immediately save three or four thousand in the community of mining people, we may be able to demand and get cleaner engines, you know.

I will say the number two point, develop fuels with good lubricity and low sulfur. Third, the ceramic systems, as I said, you know, if you demand that CO be

reduced to 100 parts per million, they will have to use very high amount of platinum, the equipment becomes counterproductive. So, let's have a balance there and make the body of the system strong, so it won't be cracked in its use.

And the last recommendation I have, that if you insist on using low-temperature paper filter, think about air cooling. Mine air is quite cold, compared to diesel exhaust. And you can use that mine air to cut down the size. I don't know for sure, but I think you can cut down the cost.

So, this is basically my proposal and I'll be glad to answer any questions that you may have, to the best of my capacity. If not, my fellow Commissioners will help.

MODERATOR TOMB: Okay. Thank you, Dr. Thakur. Why don't we start with George.

MR. SASEEN: Chris?

MR. HAMILTON: Yes.

MR. SASEEN: You mentioned that WVU tested 27 engine filter combinations. Was a larger scrubber with a pleated paper medium system tested?

MR. HAMILTON: Not that I'm aware of, no.

MR. SASEEN: Is there any plans by the West Virginia Commission to look at that type of system, since, you know, a lot of the permissible systems in use in the

United States, you know, is a large scrubber-based system, at this time?

MR. HAMILTON: It's been discussed. There are no concrete plans that are before us to have that tested.

MR. SASEEN: Okay, thank you.

MR. HAMILTON: It's envisioned that the Commission is going to have some perpetuity with this. We're going to -- we are charged, once we have an initial set of rules in place, to continuously work to raise the bar, as new and new technologies and innovations are developed and some of the older technologies are refined and improved. You know, the $150,000 grant, there was some in-kind contribution, probably raise that in the neighborhood of a quarter of a million dollars. You know, we wanted to take those technologies that have been available for some time, that are in use around the country, as well as some of the ones that were on the drawing board, and get those tested and factor those into our initial standard setting process.

MR. SASEEN: Thank you.

MODERATOR TOMB: You done, George?

MR. SASEEN: Yes.

MODERATOR TOMB: Ron?

MR. FORD: Yes. Mr. Thakur, in one of your slides, you showed a $30,000-45,000 figure for the paper filter. Is that the DST dry system?

DR. THAKUR: A similar dry system based on heat exchange and cooling, and that's an approximate price. I'm not a manufacturer.

MR. FORD: And that price is the purchase plus installation?

DR. THAKUR: No. As I said, that's the cost of the equipment. Installation would be extra.

MR. FORD: Okay. But, I thought that in Salt Lake City, where we had the first hearing which you attended, that I asked about their DST system, and they said it costs $36,500, and they said that was purchase and installation.

DR. THAKUR: You also recall that was for a 94 horse engine. And the speaker later made a comment, the bigger the size, the higher the cost, you know.

MR. FORD: Okay. So, what size horse power are we looking for just the purchase price in your slide of $30,000-45,000?

DR. THAKUR: Ron, it's not fair to pinpoint that question on me. I don't manufacture these things. I only buy them.

MR. HAMILTON: I can add that there is a West Virginia equipment manufacturer that has a dry scrubber type system that's incorporated, Ron. I'm not sure it's in operation. But, they have used the figure of $61,000 for the cost and installation of that device.

MR. FORD: Thank you.

MR. HANEY: Dr. Thakur, in your slide for oxidation catalytic converter, you showed a 25 to 35 percent reduction in DPM, and that's consistent with the values I've seen for oxidation catalytic converters operated over 250 degrees centigrade. Do you have any information or data on the performance of the oxidation catalytic converters at temperatures below 250 degrees, where your light-duty equipment would normally be operated?

DR. THAKUR: No.

MS. WESDOCK: Will you be able to submit copies of your slide for the record, as well as copies of your testimony?

DR. THAKUR: Yes.

MS. WESDOCK: Thank you.

MODERATOR TOMB: Dr. Thakur, could you also include a copy of your thesis, if you -- that was part of that, also?

DR. THAKUR: You'll have to pay for that.

MODERATOR TOMB: Okay. We're not done, yet. Okay, Jon?

MR. KOGUT: In the filtration efficiency testing that was done at West Virginia University, did you make comparative measurements with and without the filter of the diesel particulate size distributions and/or the numbers of

particles --

DR. THAKUR: Jon, say it again. I'm sorry, I missed your question.

MR. KOGUT: In the testing that was done at West Virginia University, did you take measurements -- comparative measurements of the size distribution of the diesel particulate with and without the filters and/or measurements of the numbers of particles -- number of diesel particles?

DR. THAKUR: It was not the intent of the Commission to measure the size distribution. Our only concern was on a mass basis, the total exhaust system, what efficiency we can get. Now, you will have to ask the University if they have any data. In fact, Dan Carter is here and he can answer that question.

MR. KOGUT: So, you're saying that they may have made such measurements, although that wasn't the primary purpose of the study?

DR. THAKUR: It was not the primary purpose of our study, right Chris?

MR. HAMILTON: That is correct.

MR. KOGUT: But there may have been some measurements?

MR. HAMILTON: Could have been, yes.

MR. KOGUT: And one other question to Dr. Thakur.

You -- I think before you put the slides up, you mentioned the 500 level and you implied that that would be a safe level, 500 milligrams per cubic meter, that that would be a safe level.

DR. THAKUR: No, no, no. I have no idea what is safe. I am a doctor, but I'm not a medical doctor. What I said, whatever we don't have, it's common in the industry that when you cannot come up with a medical standard to say about the health of workers, it is proper and fair to take a technical approach. And generally, as you know, there are two kinds of standards: MAK and TAK -- correct me, I don't know what you call it. What I talked about is what is technologically achievable.

MODERATOR TOMB: I guess I have a question on that, then. Are you saying that you think that the lowest level that can be technologically achievable is 500 or .5 milligrams per cubic meter?

DR. THAKUR: In the lab. And I tried very hard to explain that the ambient air concentration because of the four safety factors would be less. I wish there was a way to measure it and tell you exactly how much less it's going to be. The only thing you can factor in is the duty cycle. If it works only half the time, it's going to be .25. If it's going to work less than that, then it's going to be less than .25.

MODERATOR TOMB: But, if you make -- if you make an assumption that there are no safety factors in that level, that's the level that would then be achieved at the mine, correct?

DR. THAKUR: I'm saying that's a straightforward calculation. The engine works eight hours, if configured with the amount of ventilation we provide in the West Virginia State. It cannot create more than .5. Now, I use that engine only for half the time. So, it automatically comes down. The duty cycle is a very big denomination to cut down the lab value to a lower value for ambient concentration. And then other things were there, the effect of ventilation is one of them, deposition of particles, the third one, and excess air built-in, the 100:75:50, I would say it's going to be much lower. But, I wish I could tell you exactly how much lower. I don't know.

MODERATOR TOMB: Okay.

MR. SASEEN: The .5 that your -- that the Commission comes forth, is that based on the lab -- the ISO eight-point test?

DR. THAKUR: Yes.

MR. SASEEN: Have you considered any other test cycles?

DR. THAKUR: Well, I haven't. I have asked engine manufacturers to suggest if there's a better way to

replicate the mining duty. So far, George, nobody has come up with anything better than I have, so we ignored them. There are some questions about mode one, as you know very well. But, I am not competent to answer that question.

MR. SASEEN: Okay, thank you.

MODERATOR TOMB: Okay, thank you, very much. I think, at this time, we ought to take a lunch break and be back here at 1:00.

MR. WILLIS: One of the problems is that, and I bring it up, and I don't mean to antagonize the Committee, and I have all respect for -- worked closely with him for almost 30 years, but as the speakers have been speaking, we, understanding they were going 30 minutes at a time, and now it's going two hours one group and half an hour for the other group, but so be it, I'll go ahead and proceed.

MR. TOMB: Mr. Willis, could you give your name, spell your name, and who you represent.

MR. WILLIS: Yes, I will. My name is William, W-I-L-L-I-A-M, Bolts, B-O-L-T-S, Willis, W-I-L-L-I-S. And I'm currently employed by Counten Industries/AEI, whoever they are. I am a safety committeeman, representing Local Union 8843. We have two underground mines operating currently. One was, one's a section working mine, the other one's a four section working mine. We have 900 members in our local union, that includes retirees. Prior to the job I'm

presently holding, I worked for the State of West Virginia for eight years as the Assistant Commissioner of Energy, and also as an Administrator of Mine Rescue and Training. Prior to that, I worked for the International Union of United Mine Workers of America for a little over nine years as a safety inspector, and also an international representative.

Through these experiences, I will share some of my personal experiences with diesel equipment, and also with agencies, as well as mine management dealing with safety issues. As a brother's spoken briefly before about violations that have been written at his mine, currently at our mines, our two mines, we've had 416 violations written year to date. I've brought a few of those with me today. Here they are, year to date. Of course, we know inspectors are not at the mine every day, and that number would be who knows what if they were there every day. It's my understanding that they spend approximately on inspection two hours a day at the mine. Average.

On my travels as a safety inspector for the United Mine Workers of America, I've been in mines that have diesel equipment. And one thing that, as miners, we know, that when we're exposed to dust hazards, noise hazards or diesel hazards, we are the first to know. And it was apparent to me, the first diesel mine that I went it, it was in the western part of the United States, once getting around that

diesel equipment I immediately starting getting a headache. And through those headaches, I didn't need a carbon monoxide detector. In knew that there was some problem there. After discussing that with some of the miners, they said their heads weren't hurting. And I think it gets back to the simple situation, and I hate to offend my brother, Ms. Knuckles that smokes, but that also makes my head hurt. So I know that the carbon monoxide that's coming from that is killing me slowly. My dad died of black lung, added with that he smoked cigarettes, and died of cancer. So I know what's taking place.

With all the testimony that's been given today, I'll give you one example of a mine that we went in in New Mexico. I was the lead person for the UMW at that time. We had an administrative law judge with us. We were looking into the two entry system, and through that they had diesel equipment in that mine. On the belt lines, of course, you know that the monitoring system has to be changed, and the CO detectors have to placed where, from your ambient level of exposure to your miners, there are levels that are high, and high high. As most of you will know on the panel, and many of you here in the audience today, once that high high alarm is met, then there's procedures that you would go by to remove people from the mine.

On that day when we were in the mine, this is

documented, and I'm sure Mr. Duncan can get you those records, 58 times those alarms went off while we had the judge in the mines. Fifty-eight times. Not one time were we notified that those high high alarms went off. Fifty-eight times. Each of those instances were recorded and documented by the company's records. And are in the records at headquarters in Washington, DC of the UMWA.

As we look at those cases, and as we look at the scrubbers not being maintained properly, everything that the good doctor spoke of just a minute ago, and I'm not downing him in any way for his statistics. All those statistics that he was giving, as I see as a rank and file miner, was when things are perfect. We know violations are written every day, every single day, on scrubbers not working properly. On people being exposed to dust. Ventilation systems not being kept up. So what we're asking, as rank and file miners, is that you go to the most stringent thing, the most stringent way of filtering the system. Yes, it's what's in my lungs, that's what it comes down to, is what I am exposed to. And however that may occur, we don't care. As long as it does occur. And its maintained properly.

But through history, and I'll add this one thing as a caveat to my opening experience, I'm an adjunct instructor at West Virginia University Institute of Technology on labor and management relations. I've been

teaching it the past four years. And as we look at these things in my mine rescue background, that what takes place, there's a cause and effect for all of these things. To bring diesel into the mines, and that's why the mine workers have fought it. We're not fighting diesel in itself. You know, if you just take diesel and spill it, you just cut it in half and the first part of us die. We don't want to die. And that's the reason we're here today. We don't want to die from these fumes that we know we'll be exposed to. That we know it's not going to be kept up. That we know, and I'm not saying this to the gentlemen to keep asking how much does this cost, how much does this cost. And I guess everyone on the panel works for MSHA. We don't care how much it costs. And I don't think MSHA should, either. And if takes whatever amount of money, X amount of dollars to protect us, the rank and file miners, that what it costs. And number, and it sort of upsets me to hear that, someone from MSHA asking how much does it cost. I don't know the purpose in that, and I may be way off base and I apologize if I am, if there's a reason besides protecting miners. If that's the reason, so be it. Ask how much it costs. It doesn't make any different to me, as long as we're protected.

There's emissions for cars in California that everybody else doesn't have in West Virginia and across the

United States. Maybe the Californians are a lot smarter than we are. Maybe we're dying a slow death that way, also. But through with the dust and noise and now diesel, and in West Virginia, yes, we have fought it. And I've been on the Coal Mine Board of Health and Safety when we've discussed these issues, appointed by three different governors for the State of West Virginia, and discussion these issues. When I left the Board, Rick Glover replaced me on the Board. I worked with Chris Hamilton many years as far as working on health and safety issues. We need to continue to work on those issues, and the hearing like this today.

And one point about this hearing today. Notification. Our Local Union did not receive any notification from MSHA about these hearings today. We got notification from Rick Glover. Now, that's fine to say Rick Glover's my representative. Rick Glover is one of my best friends. Rick Glover has a lot of jobs to do. I shouldn't be dependent on Rick Glover and find out about these hearings three days ago, and then having to work to 2:00 a.m. in the morning and then come up here and be required to work tonight. That's unfair to the rank and file miners. That's probably the reason you don't have more rank and file miners here than you have, because they weren't notified. And you truly can't blame that on the International, or the Districts. We should be getting notified ourselves. I'm

sure you've notified every coal company that there was a hearing here today. Our Local Union wasn't notified. And that upsets me. That bothers me.

I think another thing that we need, we have a part 90 for health, for exposure to dust. We needed a part 91. I'll just use part 91 as a reference. We don't need to wait until we have a body, someone a good doctor like this has found that they've been exposed to diesel fumes, and now we have a body. We need some regulations now. We need a part 91. After we find someone dead, yeah, we'll have a part 91 then. We need it now. People have been exposed all across the United States to diesel fumes for years and year and years. But West Virginia's fought it. And I'm proud of them. And I'm proud to be in West Virginia fighting those. If it's right, if it doesn't, the exposure's not there, we don't have a problem with it. But we need to do something about it.

The health issues as Jim Weeks, and Jim Weeks is a colleague of mine and has been for several years. Jim, I know has worked many hours, and Dr. Kerr before him, working on as far as the health and safety concerns of the miners. And I commend them for their work. But as we look at this, and as I'm winding down my presentation, which is brief in length, and also in writing, and also I'll make comments later on because notification just wasn't here, as far as

the Local Unions are concerned, and especially for me as a rank and file miner. Now, at other times, yes. When I worked with International I had plenty of time to work on a presentation. Yes, as an official for the State of West Virginia, I had time to do it and I could request that the people working under me or through someone else that worked for me, would have time for a presentation and research and so forth. But if it's 95 percentile that we need, or whatever it may be, and cost is certainly not the concerning factor on this rank and file miner. Today with me, we have the president of our Local, which is not an underground miner. But he's concerned enough to be here, that we're protected. And also to say to committeeman Bob Van Meter here, and Ms. Knuckles here with us, Jim Mill's president of the Local.

Just last week we were called to the Mine Safety Committee because of ventilation problems. We went to the mine, we made an inspection, and we found the ventilation problems. We called MSHA in. MSHA wrote a violation. I'll give you another instance. I ought to, let me add a little bit to that one. When we got to the section, the dust, the scrubber had not been cleaned on the day shift. Well, whose fault is that? You call it the miner's fault. Whose fault is it? It comes back to mine management. And we did chastise the miners for not cleaning the scrubber system.

If we do have diesel, there should be a cutoff just like on a methane monitor. When those exposure limits, or how much particulates are coming out of that system, that machine should shut down, shut itself down. Don't leave it on the poor miner, where's he's got to blister all, and worry about after having a 105C complaint and maybe getting his job back six months from now. Or maybe not getting it at all. No, that's not what we want. We want something there that will shut the machine down and stop it before it gets to that point. Don't leave it on the poor rank and file miner to say, hey, I may be sold out tomorrow. My job's in jeopardy. Yeah, I can do this and I can do that. Rank and file miners won't do it, and they're not doing it now.

In the month of October, we were called to the small mine that I mentioned to you. We went there on a safety inspection. We were making the inspection, no ventilation. And the good doctor, he showed some ventilation, how much ventilation's on a section. If we can find that ventilation in our mines, we'd be blessed to have that. We don't have that. And that would be that much more exposure than we have. But what we found on this inspection, we found that the operation running roof bolt machine with very little or no air. Wouldn't even turn an anemometer working in the place. We asked mine management to shut the piece of equipment down and get air in the

place. No response. No response whatsoever, until they finished on the bolding cycle. We filed and complaint on that, and yes MSHA came in. And I'm proud of MSHA. My brother's an MSHA inspector. They came in, they wrote a violation up on what we found. And then, when we started researching what had happened, the miners said, well, they don't bold on cycles. So why should we hang curtain and put that much more dust on us? And that's going to be the same thing as diesel. It's going to be the very same thing. If we don't have the control, just like on the continuous miner, where that piece of equipment was shut down, it won't happen. History shows it. Violation shows it. One brother that spoke earlier, 500 violations a year. And if MSHA was in there more than what they are, it would be 5,000 violations a year.

So, I think it behooves us all to do something different. And yes, we do need more education for our miners. Yes, we do need more education for the agencies working with the miners, and especially the rank and file. I've been on both ends, so I know. And I'm proud to be here, the rank and file miner today. I thank you for the opportunity to speak today. And Rick, I thank you for telling us about this hearing. Three days. And that's a big notice for Rick, because I know Rick's work schedule. Because I used to have that same job he has. But we sure

wasn’t given notification. If that’s notification to the rank and file, we need to do something about it. Any questions?

MR. TOMB: Thank you, Mr. Willis.

MR. WILLIS: Have you got something? I’m ready.

MR. TOMB: OK. Thank you very much. Are you going to submit a copy?

MR. WILLIS: I’ll submit a copy, sir, yes.

MR. TOMB: OK. Thank you.

MR. WILLIS: Just give me time, I didn’t know about the meeting.

MR. TOMB: OK, yeah.

MR. WILLIS: Thank you.

MR. TOMB: OK. Now we’ll take our lunch break, and why don’t we try to be back here at five after 1:00.

(Whereupon, the hearing was recessed, to reconvene at 1:00 p.m. this same day, Thursday, November 19, 1998.)

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A F T E R N O O N S E S S I O N

1:10 p.m.

MODERATOR TOMB: The person to make the next presentation will be Larry Steinhoff.

MR. STEINHOFF: Hello. May name is Larry Steinhoff, S-t-e-I-n-h-o-f-f. I'm the chairman of the Safety Commission, also vice president of Local 2258, and we have a mine in Waynesburg, Pennsylvania.

There's a couple of things: right now, I'm a mine examiner, with 25 years experience, 20 of which are to dealing with mines. I have also been a member of the Mine Rescue Team and also the Fire Team.

We had a safety grievance filed May of this year on operating a diesel locomotive in an area that didn't run out of the air velocity. From the grievance settlement came a survey to mine ventilation, which I performed myself, and I'll leave this with the Committee. We've had numerous ventilation violations to MSHA. And as a mine examiner, I see this everyday, every shift: walls leaking, doors left open, that the face is not being ventilated.

We have a concern with the added risk and the hazards involved with diesel. We know that technology is moving ahead. But, this is a hazard that you can't see what happens from the diesel fumes. You can absorb it. You can only smell it, either by instruments used to test it.

We had a lot of problems with other elements coming into the mines, resin, polyurethane glue, oils, now diesel fuel. It's my opinion that ventilation alone will not dilute the diesel particulates.

Daily, when I come out of the mine from my examinations, I enter into the record books any hazards that I find. The training that our mine was supposed to have for the diesel, I am a mine examiner and also chairman of the Safety Committee, I've never received that training, as a lot of people have not.

The law has been effect for almost 30 years and for some reason management can't comply with these laws, and I'm afraid of what's going to happen down the road with implementation of new laws.

We had a situation in our mine several weeks ago. The motor that operated the diesel, had left it idled in a long lost section almost an hour. The whole crew had to smell the fumes off this diesel. Now, our motors, we were the first ones that took advantage to have the diesel motor. Ours is only a year old and already we're having problems with it.

We want the best the technology has to offer for our brothers and sisters. We don't sit in offices; we work underground. We work in this environment everyday. We work eight, ten, twelve hour shifts, six days a week. Multiply

it times 20, 30, 40 years, that's the time we spend underground.

Our concern is real and we do not wish to be used as guinea pigs for companies to make more profit or expense. When it comes to people's lives, the cost of filters should not even be a consideration. And also, we have on order, it should be arriving within any day, two more diesel motors, one for our mine and one for the Cumberland mine in Waynesburg.

And that's basically all I have. And the copies of citations and safety grievance, I'll leave with you. Do you have any questions?

MODERATOR TOMB: Thank you, very much, Mr. Steinhoff. Okay, thank you. You got off easy.

Our next presentation will be made by Mr. Bobby Little.

MR. LITTLE: My name is Bobby Little, L-I-t-t-l-e. I'm not a public speaker. I just have some concerns here of my own.

My local presently has about 200 ventilation violations right here, in the last two years at our mine site, Maribone Development.

MODERATOR TOMB: What mine was that, please?

MR. LITTLE: Maribone Development, southern West Virginia. We don't have diesel right now. West Virginia

doesn't. As you know, in January, they're talking about one.

I think one of the big factors that this Board is looking at, and I think most of the union people in here see that, is its feasibility. I've got two grand -- I mean, I've got two dollars, and each one of them remembered our grandpas. Both our grandpas died of lung cancer. You tell me feasibility, what it means to me: my dad and my father-in-law. You tell me feasibility, what it would cost me now to let my -- to have -- for them to share their grandchildren's life or their children's life. My dad died, I was pretty fortunate, I was 20 years old. I had younger brothers and sisters that wasn't so fortunate, 12 years old.

Lung cancer is a personal matter. These operators and this big industry is here telling you, you've got to rule on the benefit for them. You need to think about the working people, because we're the ones -- we're the ones that are going to die with lung cancer.

When they asked me to speak -- you know, we come as a group -- and I did a little research on the Internet about diesel particulate matter and carcinogens and things like that. And they said, Bobby would be best to speak. But, you know, I can't tell you nothing that these engineers haven't already told you that you don't already know.

I can give you some memories. All I have is some

memories of my father dying, trying to eat baby food, because he had cancer; my father-in-law dying; and the pain my brothers and sisters went through and I went through. That's the personal side of this that, I think, everybody is overlooking.

And I think you're looking at, well, is it going to be cost effective. You know, what's cost effective to me right now? What would you give to see your grandchildren? Would you put risk of lung cancer? I want to ask you not to judge me by the color of my lungs. I don't think it's fair that you can judge me by the color of my lungs.

I think you need to look at each individual and what is best. I think it's your obligation to do that. I think it's your obligation, whoever set this panel up or however how this works -- I don't know -- I don't know all the details of this. But, I think you're obligated to the workers, the people that you're going to put up there, to do the safest possible way.

It may be -- I heard someone say it may be recessive. Well, maybe we didn't need the diesel 25 years too early -- 25 years ago. It's not the best engine, but maybe we don't need it. Maybe it's not safe. Why do you put your miners at risk? Why do you put yourself at risk?

This is a federal building. Can anyone smoke here? I don't think so. Why? Secondhand smoke. You go

outside and take a break. Secondhand smoke, it does have it, if you smoke a small cigarette. So, what's the difference in a big engine and a small engine throwing off the fumes off on you? It don't say if you have a filter in a cigarette or if you have a smokeless cigarette.

You know, there's -- I think there's a double standard that we're trying to push here and I think industry is pushing it. I think that we're doing an injustice to the miners, if we don't look at every law and push every law that we can and regulate. It's not often that the people will tell you to try to regulate something. But, I'm asking you to regulate diesel underground, where they cannot.

I mean, I want to see my grandkids, since my dad didn't get to do it. And I'm sure you want your grandkids to spend time with you. I kind of lost my place, because it kind of gets -- it is personal and I'm sorry.

You know, I come here and I thought, well, maybe I could educate -- maybe I can say something, you know, about secondhand smoke. The same case were done -- basically, what I read, were done on secondhand smoke, was done on diesel exhaust. And secondhand smoke was determined that a 19 percent increase from secondhand smoke increase lung cancer. Well, diesel fumes was even higher than that. It didn't give a percentage on that. But, it's so easy for secondhand smoke to be considered bad and diesel, yet, for

industry, because it's a money maker.

You know, the only feasibility thing is here, is if the companies, if you put all the restrictions on diesel that you can possibly put on it and make it as safe as you can, then they have a feasibility thing: should they use diesel, should they use electrical, or should they use battery. And if I can stand here and tell you I can buy one piece of equipment and save tenfold on my accidents, for instance -- as someone here said, you know, the accident rate goes really way down, that's a big concern of management -- and, yet, I don't want to put $100,000 extra on that one piece of equipment, I don't think that the accident rate has anything to do with it.

And I thank you for your time.

MODERATOR TOMB: Thank you.

MR. LITTLE: And I want to ask you again not to judge me by the color of my lungs.

MODERATOR TOMB: Thank you, Mr. Little. Wait and see if there are any questions. Okay, thank you, very much.

Is there a Gene Davis?

MR. DAVIS: Yes, there is.

MODERATOR TOMB: Okay. You're up.

MR. DAVIS: Allow me to introduce myself: my name is Gene Davis and I'm the labor representative on the Technical Advisor Committee on Diesel-Powered Equipment in

the State of Pennsylvania.

MODERATOR TOMB: Who are you?

MR. DAVIS: Bob Dubreck's cohort.

MODERATOR TOMB: Spell your name, please?

(Laughter.)

MR. DAVIS: I think you ought to be able to handle that one.

First, when I heard MSHA had proposed a diesel rule that required 95 percent reduction in diesel particulate matter, I thought, finally, MSHA had put together a rule that would protect the health, as well as the safety, of our nations coal miners. However, that feeling quickly subsided, as I read through the proposed rule and realized that the only equipment that would be required to be filtered with high efficiency filters would be inby and heavy-duty outby equipment. This was not only -- this will only require filtering about one-third of the 3,000 pieces of diesel equipment presently underground. That means that two-thirds, or 2,000 pieces of all DPM-emitting equipment will not be affected by this rule.

This is ridiculous, especially if you take into consideration how MSHA determines whether a piece of equipment is deemed as heavy duty or light duty. It is not done by horsepower rating or duty cycle. A lot of consideration is given as to what this piece of equipment

will haul.

Under the current guidelines, it will be possible for the same piece of diesel-powered equipment that is the same make and model and horsepower rating to be deemed as heavy duty in one mine and light duty in yet another mine. This means that only one of these pieces would have to be filtered under this proposed rule, even though both of these engines emit the same amount of diesel particulate matter.

A couple of years ago, the State of Pennsylvania dealt with this very same problem, but took a slightly different approach, and that is simply stated, diesel engines require a high efficiency filter across-the-board. It doesn't matter horsepower rating, duty cycle, or what it hauls.

I believe this is the only approach that we can take, at this time, with all the uncertainty of health effects of diesel exhaust and with all the arguments of what concentration of DPM poses a hazard to the worker's health and the fact that MSHA admits that coal miner exposure to diesel exhaust is 10 times higher than the average worker. It would be ludicrous to institute anything except across-the-board filtering of all diesel-powered equipment, regardless of horsepower rating, regardless of duty cycle, and regardless of what it hauls.

To assure you that this is not only my belief, I

would like to present the conclusions of the Bird study, which was a study of diesel-powered equipment in tunnel sites in Europe. And, basically, you can pull this off the Internet. I imagine some of you have it. I would just like to read a few of the conclusions off of this study.

Number one: neither reformulated fuel, nor new lubricants, nor oxidation catalytic converters permit significant curtailment of particulate emissions. Further, engine development holds no promise to effectively curtail the ultra fine particulates emissions through improved fuel mixture preparation and combustions. Hot gas filters are now able to dependably curtail the ultra fine particulates concentration in exhaust gas by a factor of 100 to 1,000. This is valid for particulates of all sizes, down to the range of 10 nanometers.

The filter technology is, therefore, technically feasible, controllable in the fuel, and cost effective. Thus, all three requisites are fulfilled for wide scale employment of this technology for improving the respiratory air quality at tunnel sites and, therefore, protect the occupational health of the employees. As you can see, the study agrees with my position of across-the-board filters.

I would also like to talk a little bit about concentration limits on diesel particulate matter, or should I say the lack of concentration limits. While reading

through the preamble, I noticed that MSHA has been studying in-mine measurement of diesel particulate matter. I do not believe this technology is anywhere near being perfected to the point that it is usable as a tool for measuring in-mine concentration of DPM.

I believe the only sensible approach to this would be to test the diesel engine and filter package and said an in-lab standard, as Pennsylvania did. This standard should not exceed .12 -- and I repeat, .12 milligrams for cubic meter, when diluted by the approved MSHA ventilating quantity, and only the ventilated quantity for that piece of diesel-powered equipment.

I do not support the use of any additional ventilation quantities to be used in the calculation of this in-lab standard. It does not make sense to allow the coal operators to use an inflated ventilator quantity to meet this standard, when we all know this additional air will not be available at all times, during normal operations. I'm referring to such pieces of equipment as scoops, locomotives, shuttle cars, and many others, which spend much of their normal working days switching in and out of dead ended crosscuts, interlock doors, and various other areas, where it is impossible to have even the ventilating quantity flowing over these pieces of equipment, let alone any additional air. This is a fact that is well known by

everyone that is involved with underground diesel and it is a fact that is ignored by everyone that is involved with underground diesels.

I realize the .12 standard is a fairly low concentration limit. However, you must remember this is an in-lab test with fairly new equipment, under pristine laboratory conditions. Therefore, this standard must be kept as low as -- at its lowest readily attainable level. With the experience we have had in Pennsylvania in the last two years, I believe .12 is the lowest readily attainable level, at this time.

However, I do not believe the .12 standard should stand as a benchmark forever. I am not convinced that worker's health will not be compromised even at this low level. This is why I am suggesting that the question of filter efficiency and diesel particulate matter concentration limits be revisited regularly, as technology improves.

I know most of you are thinking that I have outlined -- the things I have outlined are not feasible, because they are very cost prohibitive to this industry. Nonetheless, I believe, if diesel exhaust is left unfiltered and untreated, the medical costs years from now will certainly be cost prohibitive to this industry, which then must pay those medical expenses; and certainly cost

prohibitive to its workers, who will be suffering from diesel-related problems; and to their families, who will be watching them suffer.

This will be the real cost to the industry, not only in dollars and cents, but also in the health of its workers. It will be appalling for the coal industry, on the hills of the black lung issue, to ask this of its workers again.

I'm not going to say that MSHA should adopt the Pennsylvania rule and I'm not going to say the Pennsylvania rule is perfect. However, it is one that does protect the coal miners of Pennsylvania and, at the same time, it is pushing technology, which is where any new rule should be. For if you can meet today's rule with yesterday's technology, with no technology at all, have you then -- have you then given these workers the full protection they are to be afforded under the Mine Act? Or better yet, have you given these workers the full protection they deserve as members of the human race?

That's all I have from my prepared comment. However, I do have a couple of things I'd like to go over that I've heard this morning and like to comment on. Number one, the .12 standard, I guess, has been kicked around in Pennsylvania and listening to Chris Hamilton and Pramod Thakur, they do not believe it's readily attainable. But to

tell you the truth, we have the 3306 PCNA CAT, 150 horsepower in Pennsylvania. Right now, I believe that 95 percent is questionable on that engine; the .12 has never been questioned on that engine. We have the original test of the MWM Deutz 916(b). There, again, the 95 percent probably is questionable, but because it's a .25 sulfur versus a .05 sulfur. But even at the different sulfur levels, the .12 has never been questioned.

I also have an unofficial copy here. This was a test run at WVU, I imagine fairly recently. This is with harp gas ceramic monolith wall filter. And this was on a list of LPU, which is -- I am not sure of the horsepower rating. It was somewhere between 14 and 19. I'm not quite positive what it was. But, it did achieve a 90.95 percent efficiency and it will meet the .12. I'll submit that, George. I know if you run down the numbers, you'll see that it does meet the .12, with either part 32 or part seven, I believe. So, it is attainable, I think. It's readily attainable. The .12 can be met.

A couple of other things: seal reduction. I don't know if we got on to seal reduction. I promoted it a little bit. But, to tell you the truth, Bob Dubreck can back me up on this, we did a test last year of a 3306 PCNA for Pennsylvania, the first one that went in, and the CO -- raw CO coming out of that engine, at that time, was like 168

parts per million, untreated. The treated side, I believe settled in around 15 to 16, and actually settled as low as 11 and 12. So, I don't know where that is a problem right now. It seems like that one has been -- the Pennsylvania law will allow no more than 100 in a tailpipe. And even at idle, this engine only did 82, I believe it was. So, there is no problem with that.

Also, listening this morning, I hear that a standard of .5 has been thrown around with no technology. But in the same breath, that .5, I understand the ceramic filter, which I've just proven can do 90 percent, cost $3,000 to $5,000, and you get 2,000 hours out of it. You take that 70 to 90 percent reduction and you throw it on that .5, put your ventilating quantity to it, I don't believe we're far off the .12 right there.

So, one thing Pennsylvania has done, it has pushed this technology. Three years ago, this same filter was going 70 percent. It's doing 90.95 percent right now. That's where we need to be.

Are there any questions?

MODERATOR TOMB: Thank you, Mr. Davis. We have a question.

MR. DAVIS: Oh, you have a question?

MODERATOR TOMB: I'm sorry.

MR. DAVIS: You said thank you, and I was ready to

sit down.

(Laughter.)

MODERATOR TOMB: Thank you for your presentation.

MR. SASEEN: Now, that list of data, what test cycle was it ran with?

MR. DAVIS: That was the standard study. It was the ISO 8178.

MR. SASEEN: And with 120 microgram -- .12, is the standard -- what test cycle would you be proposing with that?

MR. DAVIS: I believe we'd have to use the ISO again, because there's just nothing else out there, George. I know that we got into a discussion a few -- a while back in New York on that, with someone from Southwest Lab. But, until something else is proven out there, the ISO is the only thing we have to go by. Is it the best test? It's the best test, at this point in time.

Three years ago, prior to Pennsylvania, there, again, the ISO was not even a factor. I believe MSHA was using the old 39 point test. So, at least the ISO puts us on a level base with the rest of the world, actually. You know, it's an international standard and that's the best to use, at this point in time, in my opinion.

MR. SASEEN: And how about with the LPU test, the fuel that we used?

MR. DAVIS: The fuel was B-2, .05 sulfur fuel. It was regular B-2 fuel. And I guess that's what caused some of the problem with Pennsylvania, the fact that the original test on the MWM 916 was run with .25 sulfur fuel, which, at that time, was over-the-road sulfur fuel. And that standard had moved down. And that has caused an -- we'll say that we are now looking at the 95 percent efficiency in Pennsylvania. You know, we have a couple of pieces out there. We have a couple more pieces that can readily meet the .12, but cannot meet the 95. And to tell you the truth, I don't know, at this point in time, that 95 is need. I believe we may be able to lower that a little bit.

What you have to look back is when Pennsylvania created its rule, .25 sulfur fuel was out there. There was no way you could meet .12 without a 95 or greater reduction. You know, that was -- that was the feeling out there. That sort of happened three years ago, when we put this together. So, since there's not as much particulate coming out of that engine, we do not have to gather 95 percent or greater now to get to the .12 level.

MR. SASEEN: Thank you.

MODERATOR TOMB: Thank you. Anything other questions?

MR. HANEY: You mentioned air quantity. Were you referring to the part 36 air quantity or the part seven air

quantity?

MR. DAVIS: Well, seeing how I'm from Pennsylvania, from Pennsylvania, we're look at part 32, which is outby. Yeah, part seven is what we're looking at there. That has to be the ventilating quantity for part seven, factored in on the grams per horsepower, and that would give you the concentration level that we're looking for.

MR. HANEY: That's the gaseous quantity?

MR. DAVIS: Right.

MR. HANEY: The .12, that is based on your -- part 32 air quantity?

MR. DAVIS: Yeah, it is in Pennsylvania, at this point in time. That will probably be straightened up within the next six to eight months, and it has to be.

MS. WESDOCK: Mr. Davis, I believe you were going to give us your testimony, right?

MR. DAVIS: Yeah, I'll -- I have a copy of the Pennsylvania State rule that I want to put in. It's Article 2(a), Act 182, and that test from WVU. Although it's an unofficial test, it does show hot gas filters, and the Bird study, which we'll put those in for you.

MS. WESDOCK: Thank you.

MODERATOR TOMB: We have another question.

MR. DAVIS: Anything else?

MR. KOGUT: Is what you submitting to the record the complete report on the Bird study?

MR. DAVIS: It's what came off -- I don't believe it's complete. This is a rundown. If you need the complete study, I have a phone number to get you the complete study. But, this is a rundown of what they tested, five filters. And, basically, what the Bird study was, they wanted to reduce particulate emissions in tunnel sites and they tried five ways. They tried to reformulate in fuel, they tried newer engines, they tried hot gas filters, and it's all -- catalytic converters were one. And they go through each step in here and, basically, what is says is the highest curtailment of particulates is with the hot gas filter right now.

MR. KOGUT: Okay. If you're submitting this summary, could you identify what the website was? What the source of --

MR. DAVIS: Sure, dieselnet.com. You can pull it off of there.

MR. KOGUT: And then if --

MR. DAVIS: It's on here. That's where I got it.

MR. KOGUT: Would you also consider submitting to us, as post-hearing comments, the text of the -- the full text of the Bird study?

MR. DAVIS: Sure.

MR. KOGUT: I also have another question or clarification. Were you proposing that the 1.2 --

MR. DAVIS: Point 12. Don't get that wrong.

MR. KOGUT: I'm sorry, the .12 criterion be substituted for the 95 percent --

MR. DAVIS: No, sir.

MR. KOGUT: -- efficiency criterion?

MR. DAVIS: I am saying the .12 is the basic mark we hang our hat on, at this time. And if we can do that with 95 percent, fine. But, if we can do that without 95 percent, I'm willing to say that's fine, also.

MR. KOGUT: Okay. But, then --

MR. DAVIS: I will hang my hat on the .12.

MR. KOGUT: Right. So the results of these tests, you said, were a little over 90 percent efficiency?

MR. DAVIS: Yes, it was 90.95.

MR. KOGUT: So, effectively, you would be substituting the .12 --

MR. DAVIS: No, sir. Effectively, I would be substituting the 90 for the 95 percent and keeping the .12 in the Pennsylvania rule.

MR. KOGUT: That's what I'm getting at. So, you're endorsing a 90 --

MR. DAVIS: I'm endorsing a new lab standard of .12 milligram for cubic meter instead of 95 percent

reduction.

MR. KOGUT: With or without a benchmark of 90 percent filter efficiency?

MR. DAVIS: Well, I -- there should be -- what I'm saying is across-the-board filter, okay, and that may go as low as 85 percent. If you can do it at 85 percent, fine. If you can meet the .12 at 85 percent, I don't have a problem with that. You know, across-the-board filtering and a .12 in-lab standard, that is the two things I think I've tried to make clear to you, okay.

MR. KOGUT: So, there would be no -- what you're recommending --

MR. DAVIS: We're recommending there would be absolutely no criteria on reduction of the filter alone, right.

MR. KOGUT: Just -- you're just saying that there should be a filter, regardless of --

MR. DAVIS: It absolutely has to be a filter to get to the .12. You're not going to do it without a filter.

MR. SASEEN: That uses ventilating air?

MR. DAVIS: That uses the ventilating quantity -- MSHA's ventilating plate, and that's all.

MODERATOR TOMB: Any other questions? Thank you, very much.

Our next presenter will be Mr. Robert Kurczak.

MR. KURCZAK: My name is Robert Kurczak and I represent Local 1570. That's a Federal II mine.

MODERATOR TOMB: Can you spell your name, sir, please, for the record?

MR. KURCZAK: K-u-r-c-z-a-k.

MODERATOR TOMB: Thank you.

MR. KURCZAK: You have to excuse my voice, I've had a real bad sore throat.

I represent Local 1570. It's a Federal II mine and they are operated by MSHA Associated. This is a division of Peabody. And I've been a miner for over 23 years and I presently serve on Mine Health and Safety Committee. And I have a few comments for you.

The first one, I feel that all diesel equipment brought into an underground mine should be filtered, inby or out. And the main reason for this is all outby air eventually goes to the working face. If you're familiar with mine workings, it will make it there. Anything that's inby is going to be exposed to anything that's outby. And they say they can't safely filter them. I've got four companies here, anywhere from 98 to 90 percent through filtering, there are different types to help reduce the filtering.

And the second is maintenance, and it's been stated here that a diesel engine has to be maintained to

operate properly. In fact, it's going to run dirty. And I'm speaking from my mind, which I have no knowledge of diesel. We've never had it and hopefully never do. But, I've worked in maintenance and I'm going to tell you for a fact that equipment is ran until it won't run any longer. When it breaks, they fix it. And I don't see any change with diesel. Just because it says it has to be maintained to work properly, they will run it until it drops.

Ventilation: we have nine violations here, all of them ventilation, from the last three years from this mine. The most recent one I just pulled off the board three days ago. This is a test violation, 2.2, which is over the standard. Also in the last two weeks, we've had a problem with methane, and it's all because of ventilation. We don't have the air to get rid of the methane. So, I don't think you're going to be able to get rid of diesel particulates with ventilation. It's just not going to happen, at least not at this mine.

And you talked about engineering controls, that was mentioned. And I just went to a NIOSH study hearing and it mentioned engineering controls. Right now, we're worried about air protection in lieu of engineering controls. That seems to be the standard. Instead of going out and trying to get engineering to lower it, we do it another way. You see, I'll wear a respiratory instead of getting rid of the

particulates. I have to wear this thing. So, I don't think that's going to work either. There's no proof that it's working now. I don't think it will work in the future.

And safety was mentioned. Whether you have diesel or electric, your safety factor is going to be the same. You've got moving equipment in a coal mine. You can find what kind of filter that you like with a diesel. The same thing is still there. You have all the same hazards. You just have a different hazard put in with diesel.

With the trolley, we run a three-entry system. Our trolley is in our main intake air course. We've initiated safeguards. We make checks. We've never had a problem with this system. So, I don't understand why the trolley is a big thing. If it's properly maintained and the safeguards are in there, the trolley works fine.

And trade activity: West Virginia is one of either two or three underground producing coal states in the nation. Where diesel is going to make a difference, I don't know. Is it going to make us number two?

In closing, I'd like to say that I'd rather trip over a trolley cable than I would die of lung cancer. Any questions?

MODERATOR TOMB: Do you have any questions? Thank you for your presentation.

The next presenter will be Larry Kuharcik.

MR. KUHARCIK: Hello. My name is Larry Kuharcik, K-u-h-a-r-c-i-k. I'm a union coal miner. I work at the Blakesville II mine. Consolidation Coal owns it, northern West Virginia. Come this May, I'll be there 27 years. I'm an active member of the Mine Health and Safety Committee. I travel with MSHA and state mine inspectors quite often.

Since November 1, 1995 until November 13th last week, just the other day, three years, two weeks, we've had 226 federal citations written on ventilations at the Blakesville II mine, nine of these citations so serious they are either D-1 or D-2 citations. We have a problem with ventilation in our coal mine. There's no doubt about it.

Now, it's sad, but true, after all of these years, we have never eliminated black lung. The ventilation is not there yet. We still have black lung in our coal mine. That's a true fact. Now, the coal company is telling me, a mine with about 226 violations in a three-year period for ventilation, is telling me on my outby diesel equipment that I don't need a filter, due to the fact that they will ventilate for me. Now, you see what I'm thinking: they can't ventilate what we have now; how are they going to ventilate diesel equipment without filters.

We need filters on all diesel equipment. And the reason being, I'll explain that to you. Our coal mine, we have three sections and one mine wall. We are developed for

an on-wall setup. Our sections are four entry. We only inject air upper intake escapeway from our trap entry, down the belt, down the return, of course.

So, we have 350 union men working on mining, just a little over 100 per shift, excluding the prep plant. Four sections, eight men per shift, that's 32 men per shift on a section. Everybody else is outby, running in and out. There's no eight-hour workday at Blakesville II. And they were talking about their surveys was based on an eight-hour workday. We don't have an eight-hour workday on our production crews. They're in there nine to ten hours a day. The way our mine is set up, they go in and park their portal bus. That's true, that bus sits; that's true.

If it was a diesel bus, it's down. But, if we have all of the other diesel equipment outby that's not inby or heavy-duty outby without filters -- such as myself, I run a track motor, or rock dusters, or masons. They all have motors, mobiles, jeeps. We're constantly running in and out on these sections all day long doing a job, this section, that section. If it was diesel without filters, those particulates, we're running in and out all day, the air is going straight to the face of the miners mining coal. That's where the air is going.

So, where's the fumes and particulates going not filtered? They're going right on the working miner. They

have no other place to go. They're going to travel with the air force. And we constantly going in and out all day long, all shifts at our coal mine. So, we do need filters on all equipment, in my opinion, to protect us.

I told you our mine and methods. Ladies and gentlemen, you're looking at a coal miner standing in front of you, going to be 30 years pretty soon. A couple of years, I'll have 30 years. Nineteen-sixty-two, I lost my grandpap to lung disease from working in a coal mine. Nineteen-nine-three, my own father had a whole lung removed in Pittsburgh from working in it. You know, you're looking at someone who lived through the devastation the family goes through from lung disease from living in a coal mine family.

Personally, I've been to Charleston twice and they tell me my lungs are clear. I'm thankful. But, people that think controls, such as yourself, got to make the decisions and the laws that ensure that I can work out the rest of my career, and my union brothers and fellow workers can also work, in the safest, possible atmosphere we can provide. By doing that, we need filters on the equipment.

You can't tell me that the environment and the atmosphere would be better with filters than without filters. I listened to Dr. Thakur there and Mr. Ellis, Mr. Hamilton, they stood here and told us of all these tests that were done and all these labs at WVU and Pittsburgh or

wherever. I wonder how many of those tests were done in a confined environment. I work six days a week in an environment six to seven foot high, 14 to 16 foot wide. I wonder how many of these tests were done in an environment that enclosed, with air coming up on you, the particulates coming over top of you. Or was them tests done out in a lab where it's open space, not an enclosed rectangle. I believe there would be a big difference.

They were done with clean engines. Coal mine isn't clean. Coal mine is by way, shape, and form as a clean place and the equipment is dirty. They were done in excellent conditions. They weren't done in coal mines, as experiments, these tests.

So, I'll tell you, Pam, Sandy, John, George, and the rest of you gentlemen up there, I urge you to please don't pass anything, unless -- unless it has written in there that we will have filters on every piece of diesel equipment in underground coal mines.

Thank you. Any questions?

MODERATOR TOMB: Thank you for your presentation. Any questions?

Our next presenter will be Larry Tolliver.

MR. TOLLIVER: Hello. My name is Larry Tolliver. I'm UMWA. I work at Local 1713, U.S. Steel Mine.

MODERATOR TOMB: Could you spell your name,

please?

MR. TOLLIVER: Tolliver, T-o-l-l-i-v-e-r.

I was invited to come up here and talk about this diesel that's going on. I do not know a whole lot about it, until I got looking at some of the things and listened to people up here. And what I have heard today, it's kind of amazed me at some of the things that have been brought out. Like I was listening to the Pennsylvania people here today talk about the diesel. One thing that they brought out that kind of worried me was they made a statement about the electrical system inside the mines, that they could not keep that up to make it safe for the workers.

We've had that in place for years. But, during all that time, they have not been able to ensure the safety of the people that works for them. But, now, they want to throw something new into the coal industry in the diesel that we do not know what the effects is on the people that work. And if they cannot guarantee the safety of the people that's working for them now under the system they have in place now, it scares me to death of what will come out from the new systems now.

We, at U.S. Steel -- one of the things, too, I've been listening, I kind of thought that our mines was bad on citations. We had a run of citations for the last one year and ten months from MSHA on the ventilations. And the

ventilation, they come up to 72, what we've had for the ventilation citations. And I kind of thought that was bad in our operation. But listening to the people of these other companies today, that works at the same size mines that I work at, which we employ 400 and some people, I see that my mines are not that bad. And what these other people are putting up with and having to go through would absolutely scare me to death, if that was at U.S. Steel, because of the methane we have in our mines.

We run two long walls and two miner sections right now. And our mines is very deep mines. Some of our sections, they would be about two miles long, when we set up a panel, start pulling back with the longwalls. And the ventilation we have to have in our mines to get rid of the methane, which we still have methane problems, and with the air we have and the equipment we have in our mines -- like our rail equipment, the last count that I had, we had 60 some piece of rail equipment that is on the track daily, every shift.

Now, you take into count, when you get to the sections, you park the rack. But, now, we have so many outby people on our day shift. We have approximately I'd say 180 people who works the day shift. So, when you take into consideration there, the jeeps that are moving on the outside, if those were diesel, you would probably have, at

any given time, maybe 20 pieces of equipment moving on the track. And all of that diesel, if it was diesel, would be eventually working its way into the face of where the people are working.

And what I have heard here today, I cannot see how we can safeguard people with the law that we have. And like I said, that scares me. Because just like I heard one of our brothers make a comment a minute ago about black lung, we don't have black lung under control, ladies and gentlemen. It still is there. The operators don't want to admit it, but it is there. There are laws passed by our Congress and stuff that protects them and it don't protect us.

You know, all I would ask today is that this panel -- I know you all have been in this a long time and I am new at this -- but protect us. Protect the rest of the people. Because, I'm here as a union person today, but there are so many workers out here that don't belong to a union that works in the coal mines that don't have the protection that I have from the rest of the union people.

And the inspectors, we have inspectors daily. Some of these other mines, they might be there a week every quarter and that's it. And I know for myself, at U.S. Steel, if it wasn't for the union officials and us keeping an upper hand, that U.S. Steel would get around them, too,

in my opinion. But we have the support to back us up and we can keep a hand on them. But, other people don't.

In my closing, I'd like to say, just for you all to just take into consideration the workers -- not the companies, the workers. And I thank you, very much.

MODERATOR TOMB: Thank you, Mr. Tolliver.

Our next presenter will be Mr. James Bennett.

MR. BENNETT: Good evening. My name is James Bennett, J-a-m-e-s, B-e-n-n-e-t-t. I'm here as a representative for the United Mine Workers. I'm a member of Local 6207. And it's my -- I consider it a privilege to be able to talk to you folks this evening. And even though I work in the mines in West Virginia, where diesel equipment has not been allowed to be used up until this time, at least it's in consideration, at this time, I have many concerns as to the outcome of what the diesel equipment in the underground mines might bring forth to my health and miners, who might, in the future, work in the mines.

I'm concerned to the point that with the rules and regulations that the mines have to work under, with federal and state regulations, it's hard for the companies to comply to those rules and regulations. I have a few copies of citations here that have been issued at my mines -- the mines where I work; I don't own it. But, anyway, there have been 15 violations in the time period of April, 1996 until

September, 1998, and these were violations for ventilation problems, all stating that the approved ventilation plan was not being complied with.

And, you know, it's not like the law has changed from day-to-day. We know that once the regs are handed down, that they're going to be - they're going to stay that way until some other regulation takes its place. So, it's not like that, you know, well, we didn't know the regulation was like that this week. These regulations have always been the same, but still, yet, there has to be citations written, because the company can't seem to keep those regulations enforced.

Some of these violations include discrepancies from check curtains down in the face, which would be -- probably the company people would say, well, that's the workers fault because it's not up. And I may have to say, I agree with that, but to permanent stoppings down, you know, in the outby crosscuts. I run a bolting machine. I try to -- my partner and I that work together on the bolting machine, we try to keep the curtains up. Well, most general, we do, because we don't -- the boss that I have is pretty rough and he'll give us a talking to, if we don't. But, I can't go back and make sure that after we get a set of crosscuts finished up, that somebody is back there delivering cinder blocks and building up ventilation

stoppings.

But, anyway, it's my concern that if just a thing that is simple as that, to keep ventilation up in the face for the working places, how hard is it going to be to keep ventilation up to par outby for these diesel equipment that is being run? If we can't keep a sufficient amount of air in the face where the working man is, how do we know that in the future, if we have to increase the volume of air, that we can keep it outby to ventilate the outby equipment?

According to the inspectors evaluation of these violations, they could resolve an injury or illness expected to be at least lost workdays or restrict duty. I have these violations here and I will submit them to you as exhibits, if you would be interested in having them.

At the mines where I work, currently, we have a isolated intake entry to provide air to the working faces. I have heard through the mine management that in the near future, we're going to change to belt air. Of course, at that time, they'll have to change their monitoring systems and things, I understand. But, I just wondered, then, if that belt air, which the belts and the track run side-by-side in the same entry, if the diesel emissions are going to be blowed up on the men in the working face, if it comes to a point that in West Virginia, we have diesel equipment underground.

A lot of the statistics that some of these gentlemen have talked about this morning is way above my head. I'm not an educated person, but I do know that working in the coal mines can be hazardous to your health, through rock falls, through contaminated air, and different measures that can take effect upon your health and safety.

It's my concern that if we can -- we've been existing in West Virginia for a long time now, with the electric-powered trolley and equipment. We've been existing with battery-powered equipment in the face area. And I just can't see where it's really a necessity for the companies to become -- or to remain competitive and convert to diesel equipment.

Everybody likes to have a big fat pocketbook. Probably my wife is worse than anybody else. But, you know, sometimes, I tell her, I say, hey, look, our budget just don't provide for that. And I think the companies need to take a real strong look at what their budget will provide for. Seems to me like it would be easier to exist on what you're doing now, than have to invest a lot more money in your equipment, just to say that it improves their competitiveness.

As far as safety is concerned, at my mines, I don't think that we have a big problem with safety. On track, we have two main mine motors and, as well as I can

calculate, about nine portal buses. We have only had one accident, a severe accident that I can think of, where two portal buses run into each other. But, possibly, that could have happened whether they were either electric powered or diesel powered. I would like to see the equipment in West Virginia remain as either diesel -- or excuse me -- electric powered or battery powered and that diesel wasn't even presented in the mines in West Virginia.

Although it's my understanding that through the legislative process, that probably it will be. And under those circumstances, I would like for as strict of laws to be -- to be implied in that legislative as what is possible, to provide the better health and the safety for the workers. It's my opinion that each and every piece of equipment be filtered to the greatest extent available, at the time that this law may be taken into consideration.

I really don't have much more to say, because I feel like some of these fellows from Pennsylvania and different areas that have worked in mines where diesel equipment is being used probably has a lot more experience and situations that they can relate to. I'm sure you don't have any questions for me.

MODERATOR TOMB: Well, let's see. Does anybody have any questions? Okay. Thank you, very much for your presentation.

Our next presenter will be Dan Carder from the West Virginia University.

MODERATOR TOMB: It's Dan Carder, C-a-r-d-e-r.

When I was originally asked to come speak here today, we weren't sure whether or not we were willing to make a full presentation of data or whether I would just make the data available for any questions or comments that needed to be made. I've got some slides -- overheads of the finalized data from all of the reports for the West Virginia Diesel Commission, if you'd like to view that.

(Pause.)

MR. CARDER: First of all, I'd like to commend MSHA and the panel for undertaking such a monumental task as legislating a DPM content or level for in-use mines. And the reason I'm saying that is working at the University, we've done quite a bit of testing for in-use, on highway and off highway, diesel engines. And the evolutionary path that on highway is taking in legislating the amount of diesel particulate in gram per mile or gram per break force per hour is a task, in itself. And as you all know, there's a lot more pollution air above ground than there is in the mining environment. I, personally, have never been underground. Denny keeps telling me that he's going to take me down sometime, but I've never been able to do that, yet.

Some of you may know my advisor, Dr. Myrtle

Godham. He's probably the person responsible for obtaining the research for the regional diesel study at West Virginia University and also for the development of the National Center for Mining, Engines and Safety. When we set out to develop the center, our objectives are shown here, to improve the working conditions in West Virginia mines through safe, efficient, effective, and economically viable technologies, which reduce emissions from engines and enhance the productivity and operating efficiency.

We also wanted to provide technical assistance and reliable, quantitative information to the Commission. We also wanted to provide a way to conduct need-based R&D programs, in consultations with the Commission, and to provide technical assistance and training to personnel involved in the operation, testing, and maintenance of mine engines in West Virginia mines.

I'll briefly put up the two most activities performed under the '97-98 diesel study and the '98-99. I believe Chris Hamilton eluded to the number of tests and combinations that we did use. You can see here the basis was MWM 916, which was the same engine that was used for the research study that ended up being quite instrumental in the development of the DPM standards for Pennsylvania. I would also like to stress that WVU didn't enter into that research program, knowing that it was going to have that impact. It

was a Bureau of Mine study that was basically a research study for a graduate thesis.

That engine was used to test the difference between high sulfur and low sulfur fuel. I believe Gene Davis mentioned the change in the sulfur levels of diesel fuel for on road and I wanted to support him, and that is indeed the case, .25 used to be the standard for on highway and that has improved now to the .05 percent.

We did a test on the Caterpillar 3306, with the following combinations, basically a DST and a clean air system; the Isuzu C-240; and a Lister-Petter LPU-2. During the program, we've also been working with development of paper traps, exhaust gas recirculation for an ox reduction, microwave trap for generation. And probably the thing that I'm most excited about is, and one of the issues I would impress upon MSHA, is the development of a portable mini-dilution tunnel system for in-field measurements of diesel particulate matter.

We are in agreement with many others that it's one thing to test the engine and to develop DPM standards in cell. To develop such a cart you can take into the mines at basically the drop of a hat would be very beneficial, in developing standards, in developing systems, and also in inspection and maintenance programs.

The '98-99 study, again, continued. We did do --

I believe one of the panel members asked earlier about some particle sizing. We did do particle sizing on the Isuzu C-240, outfitted with various combinations of the exhaust after-treatment devices. We have not made that public, yet. The Diesel Commission and the diesel study didn't find -- or wasn't interested, yet, in size selective measurements and size selective gravimetric reporting. So, we have the capability. We have TMs, SMPSs, LPIs, and we are using them daily. We have the data and we're still correlating. And that may be something that we could submit after this meeting. We -- after finishing the C-240 test, we received the Lister-Petter engine, after a correction and then retested it again with the Acme seal system.

In order to save time, I'm not going to go through all of these slides. I was going to throw up quickly the DPM graphs for each engine. This is particulate mass emission rates for the MWMD-916, using the .25 percent sulfur and the .05 percent sulfur. And I've got a chart here across-the board. The way it averaged for the ISO 8178 was about a 22 percent reduction in PM emission levels between the high sulfur and low sulfur. I'm saying .25 percent. The actual value when we had the fuel tested, it was .37 percent and the low sulfur was .04 percent. Well, this is pretty much in line with that. I believe there's quite a few published studies from Europe on the same

reduction and sulfur content, and they were seeing somewhere 15 to 20 percent reduction.

This is a graph of the CAT 3306 test, bare engine, DST clean air system, which was a catalyzed particulate filter. And the DST system, again, since we had the luxury of testing the DST system on the MWM, we had in our minds a level of performance that we felt that the system should obtain. After the original set of tests, you can see that we -- there was, indeed, a problem. We called the manufacturer -- the equipment manufacturer and they came to make repairs. After the first set of repairs, we checked again and I stopped the test after mode two. Although it wasn't a complete eight mode, again, we felt that it wasn't at the correct level of performance.

After the repair, we retested. This was also after -- thank you, Dr. Tucker -- this was after an engine checkup by a licensed Caterpillar mechanic. And we performed the eight mode again. You can see that most of the modes did -- it did perform quite well, whereas modes one and two, there were still problems. Being that the study was set up as -- bring the equipment here and tested, in order to test and to sample viable current technologies, we didn't get into development work. However, after the fact, we started looking at the results and you can see that the efficiency levels seem to be very closely related to the

temperature -- exit temperature of the exhaust gas from the system.

I would like to make a note, I'm not trying to draw conclusions. I have no vested interest toward either side. But, there was a significant difference between the setup of the 3306 and the MWMD-916, and that the D-916 had a water jacket and manifold and different catalyst formulations, as well as different catalyst locations. And further checking with Fleetguard, they did relate to us that at levels of 300 -- around 300 degrees, some of the binding agents used in some of these filters could have problems in letting smaller particle sizes escape -- again, drawing no conclusions.

The Isuzu engine C-240 was tested with a number of configurations. We performed a full eight mode with the Rohmac DCL system, which was a catalyst -- oxidation catalyst, catalyzed soot filter combination. And we reversed order, then, of the catalyst and soot filter, performed the test. And then, we did some testing with simply catalyst only and the system with a path flex paper filter at the end.

I've got some -- I'm sure the reports have been made available of reduction efficiencies. The Rohmac system originally obtained 67.7 percent. And since we couldn't -- since the eight mode test wasn't performed on the other --

the Rohmac reverse order or the catalyst only, we couldn't do a weighted eight mode average, obviously.

Again, not a part of the funded study, WVU took it upon itself to do some work with particle sizing and alternates, exotic low sulfur fuels. We used Fischer Trips, Singas process fuel, and basically ran similar combinations. You can see the results. We ran only four mode tests. Again, you know, this wasn't a part of the study, just to generate a data base. And we did see -- I believe the difference between Fischer Trip fuel and the D-2, we saw some fairly significant figures of about 40 percent reduction -- 40-45 percent reduction, I believe, in PM between the D-2 fuel and Fischer Trips fuel on a bar engine. And, again, that was in line with some of the other reports I've seen on Fischer Trips fuels.

The last engine we'll go over is the Lister-Petter LPU-2. The original LPU-2 test, as you can see, the Rohmac DCL-1, there is a significant -- or marked problem with modes one and five. This led us to believe that there was perhaps a fuel in rate problem with the engine. We contacted both Rohmac and Lister-Petter and had the engine corrected. We had an altitude correction performed on the engine and brought it back.

During this first test, we assumed that there was a failure in the trap assembly, because of back pressure

measurements that were taken during the test. When we received the engine back -- we received the engine after the altitude adjustment, the bare engine -- I don't have a graph here comparing the two bare engines -- but bare engine fueling rate had decreased by one-and-a-half times for mode one, which are rated 100 test.

With the engine -- the engines already fitted with the Rohmac DCL system now obtained pretty marked reductions. I believe the results have been eluded to. The ISO 8178, I've got the results here in a table form, produced a 90.9 percent reduction in particulate matter and a DPM level of .180 grams per hour. And just in summary, the fuel type was D-2, .05 percent sulfur. The ISO 8178 eight mode test, the weighted eight mode average was .180 grams per hour. I'm sure you can see the math. I'm just going to scoot it up a bit.

And according to the Pennsylvania regs, I believe with the 8178 test, your to obtain a .06 milligram per cubic meter, with 50 percent -- oh, I'm sorry -- with 100 percent name plate air. For this MSHA certification, the air is 2000 CFM.

As part of the study, we've reached the point where we need to make recommendations for future work. And in line with, I believe, what the labor side of the Commission presented earlier, an integrated approach of an

engine fuel after-treatment system package needs to be developed, where we look at cleaner engines, improved oxidation catalyst, and particular trap designs and subsequent coding formulations, and also the advanced fuels. I believe that if you were to take a step back and look before the Pennsylvania regulations came out, I don't think you would have had much interest generated from either the catalyst manufacturers or the engine manufacturers, to look into developing a package for end-use -- for mining engines, obviously, to the engine manufacturers. It's a very small market. But once the demand is there, I believe that the supply will come. And it would be a step in the right direction.

For our short-term research topics more testing needs to be performed on current in-use engines, explore the benefits of the ultra low sulfur fuels. Incorporate state of the art catalyst formulations. We've already ben in contact with catalyst manufacturers and packaging manufacturers, DeGuesse, Johnson Mathey, trying to generate interest in developing systems. So far, for the catalyst trap manufacturers we've looked -- we've been getting material from DCL and from clean air systems. And there has been a really a limited activity from -- from that industry. Explore all alternative after-treatment systems.

We've worked with Ruhmac to develop a system that

could be used with the catalyst trap systems in order to limit the amount of sulphation in the traps. And -- and catalyst so that you could use these engines with the higher sulfur fuel. Continue our tests with the on-line and off-line microwave generations. Use the lab for engine certification in order to check certification. And provide technical assistance and training to the miners and supervisors.

Some of the topics not mentioned here, the university does a significant amount of cycle development and that's something that I personally believe warrants looking into. I don't know -- as has been mentioned earlier -- how representative the 8-mode test is of the normal mining duty chart. And you know, through data logging, that's something that could be developed. And in addition, the on-site portable particulate sampling device, you could use it to sample exhaust emission at engine exhaust out, connecting and using it in correlation with a personal hygiene cyclone, such as the Godham Screen Cyclone to sample mining air would be another avenue to explore.

So there is a -- I think we just tapped the tip of the iceberg. There's many -- we don't need to stop here. I think that this is just the beginning and again I would like to commend MSHA trying to tackle such a problem. It truly is a very difficult task. Thank you. (Pause.) I have

copies of the results available and I'm sure that if you could contact myself or Dr. Godham we could give you something besides transparencies.

MR. TOMB: Would you take it upon yourself to see that we got copies mailed in to us?

MR. CARDER: Sure, sure.

MR. TOMB: Okay. Are there any questions? John does.

MR. KOGUT: You said that you would be able to make available to us the size distribution data that you compiled?

MR. CARDER: Yeah, again, I'm kind of a peon at this stage. I can talk to Dr. Godham. I know that sometimes projects tend to overlap one another and we don't want to use the term piggyback with university officials around. But there is some of that that goes on. And I don't know if some of the size measurements were done in part for another project. But if there's no conflict with release, we would be more than happy to release that.

MR. KOGUT: Would you like us to contact you separately about that?

MR. CARDER: That would be very -- if you could contact Dr. Godham, I could give you his phone number or whatever. That would probably be the best way to get those.

MR. KOGUT: And did you also -- were the size

distribution measurements based on mass concentrations and different size --

MR. CARDER: They were based on particle count and we did with S&PS. And we did do some Moody measurements, so we did have size selective impact or type --

MR. KOGUT: And also particle counts.

MR. CARDER: Yes.

MR. KOGUT: Could you describe the instrumentation that was used to make the size --

MR. CARDER: Yeah, the sizing information was done using an S&PS, submicro and particle sizer. I'm not sure if you're familiar with it.

MR. KOGUT: What's its principal?

MR. CARDER: The principal is to pass diluted exhaust around a charged rod with sheet there. Then by varying the charge on the rod, you can change the --

MR. TOMB: Like a mobility analyzer?

MR. CARDER: Exactly. Same thing. Same thing.

MR. TOMB: Did you want to ask a question?

MR. SASEEN: Dan, on all these data tests that you have done, LPUs, C240, what type tunnel system are you using?

MR. CARDER: Full flow dilution tunnel. Eighteen inch, stainless steel.

MR. SASEEN: Double dilution?

MR. CARDER: Yeah, constant volume.

MR. SASEEN: Yeah.

MR. CARDER: Secondary dilution. We weren't -- we weren't adding secondary dilution there. We were simply sampling into a secondary tunnel as per CFR 40, CFR 30.

MR. SASEEN: How far along are you on your portable?

MR. CARDER: We've been doing correlation studies with the full flow tunnel. So the -- I would say the -- the system we have right now, I don't know. I would have serious reservations about taking it into a mine. We are developing another part as we speak that we should be correlating probably the months of December and January that would be rigorous enough to take anywhere. In a mine, you know, in field to do offer testing, whatever. So, you know, within the next year, we could definitely doing in-mine testing.

MR. SASEEN: Have you given any thought to how you unload the engines and the machines?

MR. CARDER: Sure. Probably water break dinos depending upon how accessible the output of the engine is. Some of the engines you can partially load with cata -- sorry, with torque converters. Some hydraulic pumps. Depending on the device obviously. It's very device

specific. And probably some of the data logging, if other cycles were developed for testing, that might lead in giving you a test procedure that would more easily -- that would provide a means more easily to load the engine. If you didn't have to reach rated 100 or _intermediate 100, you know, for a sustained period of time, perhaps yod could develop alternative ways.

MR. SASEEN: That work, when you saw that number that was possibly the binder of the paper filter, around 300 degrees. Do you have any plans to follow up on that research?

MR. CARDER: We spoke with Fleet Guard and Fleet Guard was interested in looking into that. Dr. Godham has -- he has a student, I believe, looking at different filter materials and then trying to develop a test section that we can heat, and very glossy and, you know, temperature gradients. Passing it through and then seeding the flow. So we'll have to see.

MR. SASEEN: One part of the question is, does Dr. Godham have any plans or any additional test cycles that we could be looking at or any proposals for these filter determinations are?

MR. CARDER: I don't know if he's looking at any other test cycles right now. We recently obtained the Offred Study from Carve to do offred testing on some of the

above-ground rubber tired loaders, scrapers, cranes, stuff like that. And we will be doing pretty extensive data logging of such devices to get torque load, engine speed, that type of thing. And with what we learn from there and with the instrumentation that obviously we are going to have to purchase from there, that would be something that we could use in to, you know, perhaps logging some -- some equipment that's being used currently in the mines in order to develop the cycle that would be representative.

MR. TOMB: Thanks, Dan.

MR. CARDER: Sure.

MR. TOMB: Any other questions? Thank you, Mr. Carder. Okay, our next presenter will be Mr. Al Palmer.

MR. PALMER: Yes, my name is Al Palmer. I'm from 1713 Local UMWA. My biggest concern like I said is the ventilation in the coal mines. The operators do not maintain in a manner that they should. Not only two months ago we had a equipment move of people Inby. We had a state violation written on this. The state would not rule on it in a manner that they said that we did not have two separate escapeways. They do not want to define on it because of the point feed that we have at the mines. When the company was asked to do studies on if this would -- the escapeways were isolated, you know, in a matter of ventilation, they refused to smoke it because they knew they would get the air in

there. As Mr. Tolliver said, I came from the same local he did, we've had 72 ventilation violations in the past year and 10 months. Twenty-eight permissibility violations. That shows that they do not maintain in a manner that they should.

One of the ventilation violations that they had or one of the violations concerning this was on 30 different occasions they didn't -- management did not sign or counter-sign books in a manner to where if the examiner had reported conditions that could have been hazardous in the ventilation, they never even took the opportunity to look at the book, to counter-sign the books to take corrective measures on these cites that the examiners had made. Therefore they have shown that they do not -- it doesn't really concern them. You know, they are there to make money, to run it. So, therefore, I think if we put anything less than the strictest measures on these people to where that they will stay within the guidelines, then we are doing our people an injustice. If we let them take the outby equipment without filters, and trust in them to use ventilation to keep it off of us, it's not going to happen. Even in the face -- we have what we call blowing ventilation, it's a proven fact we've got it in violations that on several occasions they have found that the air is recirculated.

I was told this morning the difference between accumulation and an over-exposure to it seeing what, you know, I took it as recirculating, you were reaccumulating. But what you're doing is you're just over-exposure. The particulants that make it if to the face, if they were filtered down and you're recirculating air, then you are getting more exposure than you should. Like I said anything less than the maximum we could put on this, you know, we're doing our people injustice. Just like people said before and I truly believe this, how many of you have been underground? You know, were in a confined area? You know you follow diesel equipment down the road on the highways. I know even with your air conditioning systems and stuff you still smell it. And that's probably, you know, high tech cars and stuff we've got now, they keep a lot of stuff out but they don't keep it out. So picture yourself in a confined area, picture your children in a confined area with this stuff in there with them, and tell me if you could sleep at night knowing that you had this stuff coming in on your kids. And that's all I've got to say.

MR. TOMB: Thank you. Any questions? Thank you very much. (Pause.) Okay, our next presenter will be Mr. Phil Nine.

MR. NINE: My name is Phillip Nine, N-i-n-e, Local 1702, Blacksville Number 2. I have 25 years underground

coal mine experience at Blacksville. The first thing I want to talk about is our maintenance program.

Our maintenance on electric and battery-powered outback equipment is very poor. So there's no reason to believe the diesel equipment will be treated any different whenever its brought underground. When our safety committee has a safety inspection to where we tour once a month and inspect the coal mines, we sometimes inspect the equipment itself. Whenever we inspect the equipment, the rail equipment, we usually tag 80% of it and down until it is fixed.

We want the best filtering system on all equipment available, regardless of the cost. Whenever the diesel equipment comes into the West Virginia coal mines, we want it to come in clean, not to clean it up after its in operation. Thank you.

MR. TOMB: Thank you. Do you have any questions? Okay, thank you very much. Our next presenter will be Mr. Gerald Ellison.

MR. ELLISON: My name is Gerald Ellison, E-l-l-i-s-o-n. I represent Local 6207, Meadow River Mine. And I'm Chairman of the Health and Safety Committee there.

MR. TOMB: Is that here in West Virginia?

MR. ELLISON: Yes, sir.

MR. TOMB: It is, okay.

MR. ELLISON: Forty miles from here.

MR. TOMB: Thank you.

MR. ELLISON: We've had the diesel debate in this state for a little bit less than two years and so a lot of this stuff is kind of new -- new to us and I'm sure a lot of these other people that spoke here today know a lot more about it than I do. I do know it's a highly technical, highly, or high maintenance system. And I also know that our industry in the past has had problems in compliance with ventilation we've talked a lot about today. Some of the -- some of the citations that some of these other people have brought up, this kind of boggles my mind. Our mine is nowhere near that, but I think there's been enough of it, we do know that there's a problem with compliance.

And as you well notice, ventilation just simply doesn't work 100% all the time. You have factors like the roof holes, stoppings get accidentally knocked out. There's -- there's hundreds of things that could happen to ventilation in the coal mine that lots of time goes unaware for long periods of time. And if we have this diesel equipment giving off these emissions, there's going to be sometimes when the ventilation is just not going to be adequate. That's just -- that's a fact of life that I think all of us understand.

When I started to read some of these reports and

stuff on the diesel equipment, I was -- I was very amazed that one NIOSH report that said that possibly one -- 900 out of 1,000 -- every 1,000 coal miners could come down with cancer because of these emissions. And I thought maybe the figures were wrong. Now I double-checked it and they're not. That's -- to me, that's a very bad situation there.

Other reports that said the same thing as well besides the NIOSH report was California Scientific Review Panel said pretty much the same thing, that these emissions are full of carcinogens and -- and

*Tape 5B is playing backwards

MS. LESTER: Well, the only thing that it's used for is, we have man buses plus we have diesel transit _____ supplies. It's my understanding that the way the rules are wrote up, if they -- if it doesn't carry coal or whatever, you know, a heavy load, then it's not going to come under those regulations. Is that true?

MR. TOMB: Not exactly.

MS. LESTER: Could you explain that to me?

MR. TOMB: Do you want to explain that, George, what's specific heavy-duty from -- ?

MR. SASEEN: Let's say a house rocket coal and has hydraulics on it and --

MR. TOMB: Can be used in the long wall move.

MR. SASEEN: And is used in the long wall move.

MS. LESTER: So the only time --

MR. SASEEN: That’s heavy-duty equipment.

MS. LESTER: So the only time the trans would fall under that was when they’re being used for long wall moves, right?

MR. SASEEN: Well, if they were -- if its used for long wall moves, then they are considered heavy-duty equipment.

MS. LESTER: Okay. You mentioned --

MR. SASEEN: Move units.

MR. TOMB: You mentioned earlier that they take some of the equipment that’s in the shop and you mentioned filters. Are any of the equipment that you use in underground, are they currently used in the after-treatment filters or are you talking about air filters for the intake air?

MS. LESTER: The air filters. I’m -- I’m not sure if they’ve got the after-treatment filters on. But I know, like I said the guys have told me that they’ve took a man to change filters -- filters out on the property and they’d be put back in service until they get them on the property, take them back in and do the maintenance.

MR. TOMB: No more questions? Okay, thank you very much. At this time I would like to take a 15 minute break. So 3:15 we will reconvene.

(Whereupon, a recess was taken until 3:15.)

MR. TOMB: Back on the record. Our next speaker will be Wayne Conaway.

MR. CONAWAY: Ladies and gentlemen. My name is Wayne Conaway, C-o-n-a-w-a-y, a mine health and safety committeeman at Deliveries Mine, Local 9909, North Central West Virginia. Very first thing I do have to say is absolutely no piece of diesel equipment should be allowed in an underground coal mine unless it has a filtering system on it.

You know, the average miner in a lifetime of 35 years of service breathes in anywhere from 1-1/2 to 1.6 cubic feet of air. And I'm talking contaminated air.

MR. TOMB: Can you hear in the back?

VOICE: No.

MR. TOMB: Would you turn the microphone on?

VOICE: Is it on?

MR. TOMB: It's on. It's on the back of it.

MR. CONAWAY: This is on.

MR. TOMB: You're going to have to hold it a little closer.

MR. CONAWAY: How about that?

MR. TOMB: Yes.

MR. CONAWAY: Like I was saying before, we as a coal miner, I would say an average coal miner, if there is

such a thing, we breathe in after a 35 year period, little better than one and a half million cubic feet of air, contaminated air, fiber dust, fumes, vapors from chemical exposure. And to actually be considering putting diesel equipment underground without a filtering system is totally just -- its unbelievable.

Human lung can only take so much. There is a -- right now we know of at least 40 carcinogenic compounds that are in diesel exhausts. It was mentioned a little bit earlier in testimony of a type of poly -- poly-nuclear aromatic hydrocarbon, the PAHs. It was failed to mention that there is a brand new compound that's a nitrate aversion of this that was found just last year.

The Suzuki Company in Japan, which is a very large company, they had their chemists do some tests. The chemists found that this nitrate aversion of the PAHs actually -- how is it produced? It's a compound that has reactions by burning of the fuel and nitric oxides that take place on the surface of the hydrocarbon particulate itself. And they found that this actual compound rated the highest score ever tested on the Ames test. And for those that aren't familiar with the Ames test, it's a standard measure of a cancer causing potential of toxic chemicals. And, believe it or not, the number two most powerful compound known as far as a mutogen, is this. The number two is also

part of diesel exhaust. Can we actually live with this? I think not.

You know, there's a few things I heard earlier that kind of upset me a little bit. And its comments on as far as the 95% filtering maybe will limit the technology part of engines, fuels. I've been in the coal business since I was 18 years old and I'm really not that gullible to believe that if a new engine comes out, new fuel comes out, they won't throw away what they have and buy this new stuff. It's not going to happen.

Another thing is the classification which considers a light duty equipment. There are no -- by definition or ratings, that's fine. But by definition and coal mining, there's no such thing as a light duty piece of equipment. That piece of equipment, if it's there, it's going to be overloaded period. The more overloading you do, the higher exhaust is going to come off of it.

One little scenario I'd like for you to think of. Going back to these 40 different carcinogenic compounds. Put yourself in a room, I'll give you 20,000 cubic foot of air, and we'll bring a jar in with 40 compounds. Before I take that lid off, would you like me to have a filter on it or have it be non-filtered? Thanks. Do you have any questions?

MR. TOMB: Thank you for your presentation. Yeah,

I have one question. Do you work -- it wasn't clear to me, do you work in a diesel mine?

MR. CONAWAY: No, I don't. North Central West Virginia.

MR. TOMB: Oh, okay, okay. I didn't know. I guess my question that I was going to ask you if you worked in was, you said that -- is it your opinion that all outby equipment is operated all the time?

MR. CONAWAY: What I'm going to say, when it is used, it's going to be used to its fullest potential and above that. It's going to be over-exerted regardless of the situation. They are not going to just say, well, you know, we've only got 2,000 pounds you can lift with this.

MR. TOMB: Oh, I see what you're saying.

MR. CONAWAY: No, if it's there, it's going to be used to its max.

MR. TOMB: You're saying duty cycle?

MR. CONAWAY: Yes.

MR. TOMB: Okay. Thank you. The next person for presentation is Mr. John Hale.

MR. HALE: My name is John Hale, H-a-l-e, Safety Representative, United Mineworkers of America, Local 2283. I work the Plumfit Number 1 Mine, Rochester and Pittsburgh Coal Company. It's a subsidiary consol. I've heard many things said here today. Most of it's to do with long walls.

I worked with 38 to 45 inch coal seam. I'm not working in the seven, eight, nine foot scene. I'm a bed rock duster. I'm back in the returns. I have to eat every bit of that rock dust, coal dust, silica, everything that's common in that return, I'm eating it. Nobody's telling me that you are going to give me a respirator that will filter all this garbage out. What you might as well do right now, today, is sign my death certificate. Because that's what you guys are going to do to us if you don't put a stop to this. My mine, in the past, from January of '96 to September of '98, 102 citations on ventilation. This is unreal. It's time we start cracking down on some of this other stuff before we start letting diesels in. That's all I have to say.

MR. TOMB: Thank you. Do we have any questions? Okay, thank you for your presentation, Hale. Our next presenter will be Mr. Jon Hitchings.

MR. HITCHINGS: My name is Jon Hitchings, J-o-n H-i-t-c-h-i-n-g-s. United Mineworker Local 600 R&B Coal. We were bought by Consol Early Number 1 Mine. We don't have diesel in our mine, we don't want diesel in our mine. We probably won't have it due to the life of our mine, but that doesn't mean that I can't come here and fight for everybody else and try to make them have a safe environment. I listened to these coal operators talking about the costs, the safety of the miners. Well there's another part to

that. Its called the health and safety of these miners. And nobody said that, just the miners. Nobody said a word about the health. They are always saying the safety miners, electrical equipment versus the diesel, the safety, the safety. What about my lungs. You know, I'll probably never see diesel where I work. I'm 36 years old. I'm hoping to go someplace else that might have diesel. What about my lungs? You don't seem worried about it. He doesn't seem worried about. The only ones that are worried about it is me and my union brothers and sisters. And I think it's time like everybody else is saying, you need to crack down and do your job the best that you can do and quit weighing the odds on the cost, okay. This is America. There's people out there that will cut each other's throats to build this equipment, to make this equipment. They will undersell each other in a heartbeat to stay in business. Because that's what these coal companies are doing now to each other. So I know they can do it.

Where I work, where all these guys work, it's a competitive market out there. When these diesels come in, if they do and I pray to God that they are maintained, the filters, the best that they can be. The technology is there, why not use it. Why listen to that about the costs of maintaining this. I don't buy that. They bought Joey Miners, scrubbers, extended cuts, these things cost a lot of

money, they are using them. But that was to their advantage. Now this is something that is to their advantage, too. But they don't -- they don't seem like they want to worry about the worker. They're complaining about the costs, the cost. My life, my lungs, all these people in here, you can't put a dollar figure on that. And that's what really upsets me by listening to these operators on anything that they're saying is there's a dollar figure involved. They've been in business a long time. If they're going to take that chance, they're going to take it whether the equipment costs millions of dollars or a hundred thousand dollars. They are going to do that. They have been business, they plan on staying in business.

As far as citations, I have numerous citations on ventilation just like everybody else has. Outby equipment, I hear the light duty Outby equipment -- if something breaks down inby and you need that piece of equipment that's supposed to be outby, there is no barriers in there. They'll use it. And it will stay there until one of you or an inspector comes in there and catches them. That's the honest to God truth. They'll use it. So why not make the standard all the same. Filter everything, use the best technology you have and then there is no excuses. And then I have piece of mind knowing that whoever is using that or wherever I am at, that I can count on that equipment being

right. That I don't have to worry about an inspector showing up to make sure that they're doing it right. I am supposed to be doing my job wherever I'm at, working safe, paying attention to my job. I shouldn't have to worry about what I'm breathing. Especially if I can't see it. Now I can understand being where if I see smoke or whatever. But if I can't see it, how do I know? I hear about the strict as the PA diesel rules are, I heard the same thing with respirable dust and silica. We'll never survive, they are putting us out of business. We're doing it. We're scrubbing. We're cleaning the air. They are doing it. It seems like they -- they want to do that as the excuse that you people are going to put them out of business. But yet they are still mining the coal. And more coal now than 10, 15 years ago and we're still doing it. Black lung is getting to be something of the past as far as what I see in the mines. And that's because of you people protecting us. So I'm asking you, please, keep protecting us. Weigh the odds. Only weigh the odds in the -- the human life's favor versus the dollar figure. (Pause.) And that's -- that's all I have. Like I said, a lot of these guys covered pretty much what I had to say.

MR. TOMB: Okay. Are you going to leave that with us?

MR. HITCHINGS: Yeah.

MR. TOMB: Okay, thank you. Do we have any questions? Thank you very much. Our next presenter will be Mr. Allen Qualls.

MR. QUALLS: My name is Allen Qualls, A-l-l-e-n Q-u-a-l-l-s. I've just got a few statements to make. I've done seen enough slide projection and charts and I would just like to give you a little bit of my work history. I am 28 years UMWA. I've been in every facet of face mining. I've mined most of my -- well all of my underground was here in Raleigh County, low seams of coal. I've been subjected to equipment, electrical equipment with motors. The Fahrenheit degree on those motors got so hot you couldn't even touch them. Somebody mentioned hydraulics a minute ago. The hydraulic oils in those engines -- I mean those motors and stuff, the fumes off of it will actually choke you. I'm outside surface employee now at a preparation plant. I believe it might be the last one here in Raleigh County. Previous employers -- four employers have filed bankruptcy on this operation. We're under bankruptcy now. Some of these statements these people have made about getting material or product, product comes first.

I'd like to address you people concerning diesel fuel. I guess I have surfaced more equipment with diesel fuel than anybody in this room since I've been on service. The operation I work at now has a train that runs diesel.

Four dozers that run diesel. As high as three end loaders that run diesel. And I want to tell you that I've got it on me, I've had to work around it, and smell it all day long. This is the diesel fuel. My concern, since I'm not underground but I've been there, is to the containing the transportation of this fuel to this equipment and people just having to just smell diesel fuel.

I went home several times after driving a rock yuk with the fumes coming up through the floor boards of a dozer, my eyeballs, popping, my head popping. I'm sorry that I didn't get an education. That I have to be one of these miners who makes this fossil fuel, or provides this fossil fuel for everybody to have the luxury of.

I've seen a lot of people here today that are dressed very well, they are called doctors and got degrees. I've seen graphs and charts. Probably couldn't -- a battleship couldn't hold them out. But if Ross Perot, if them graphs and charts would have been right, Ross Perot should have been our president, because that's what he went by. Those statements I'm making are kind of, you know, just down to earth. I'm the guy that works in the field. I'm the guy that has to work around this equipment, smell it. I don't think there's any scrubber system or any filter system that you could come up with that wouldn't break down in field use, especially in low coal.

Now, somebody spoke about tunneling, salt flats, salt mines, something like that, I don't know. But the volume is there they are talking about. I remember very well, the law used to be 3,000 feet cfm in the fact, 9,000 in the last open cross-cut. This was in the 70's. We got repeatedly violation -- repeated violations. We couldn't even keep enough in. They were talking about 20 -- somebody here had 20 cfm's. I couldn't imagine blowing your head off. Let's be realistic about it.

Give you a good example. I was up on Blueridge Parkway just the other day. This has nothing to do with mining. Ridge on both sides. Beautiful God's country. I was following a Mercedes Benz. Like to choke me to death. For miles we couldn't pass. Time we got around that little vehicle, now this is an expensive vehicle, isn't it? But that's a good example. You couldn't confine this stuff underground. You crawl around in there on your hands and your knees. That lady that spoke here a minute ago. This outby equipment to -- I don't know, I don't even know the laws are now. Like I said, I'm surface man. But the dealings I have to deal with diesel fuel and equipment that uses it, it -- it's plum pitiful. So I don't know that.

I've heard a lot of people speak about the West Virginia University. I would like to ask somebody something. The gypsy moth is still giving us a terrible

fit. We've been doing studies on that 15 years. These little lady bugs that's crawling in everybody's house? We've been studying that. We don't -- what I've heard here today in this hearing, I don't see anything that's concrete or certified for the placement of this equipment in the mines. As I said, I wish I had gotten an education. I don't know that my grandchildren might be in mining. I would hate the thought of them having to handle, be around diesel fuel, diesel fumes in their occupation. Thank you very much.

MR. TOMB: Thank you. Do you have any questions? Okay, thank you very much. Our next presenter will be Mr. Kennedy. Mr. Max Kennedy.

MR. KENNEDY: Good afternoon. My name is Max Kennedy, M-a-x K-e-n-n-e-d-y. I'm here -- I'm an International Health and Safety Rep for United Mineworkers assigned to Virginia. I'm here today to speak to you as a member of Virginia's Coal Mine Safety Board. Our -- our Coal Mine Safety Board in Virginia is the regulatory work group for the Division of Mines.

The Board is undertaking the task that you have before you today at the state level. And our process has progressed to the point where we will schedule public hearings in the near future. But what I would like to say is that this -- our Board has wrestled and had presentations

on different aspects of diesel equipment used in Virginia's mines for the past 16 months. As a result of those presentations, we -- we've adopted language that was, above board, an improvement on existing regulation that we had until MSHA finally issued the proposed rule. When -- when the proposed rule was issued this year, the Division of Mines went back and drafted language and I'll get into that a little bit later on. But this -- this put us back as far as requiring after-treatment exhaust packages which we were intending to do. And that puts the federal agency and the state agency, when we were going to require assistance to protect miner's health and safety, at odds.

But, our task at hand today depends on what you do at the state level in Virginia. Because most of that is going to hinge on the specific requirements, heavy duty versus light duty has become a factor because what we intended was all equipment, as far as after-treatment packages in Virginia, whether it be inby or outby. But since the agency, MSHA, has proposed a specific definition for inby and outby, heavy duty versus light duty, that's put us at a disadvantage to clean up some of the equipment that we have. In Virginia, 80% of the equipment is outby equipment. And that's going to cause us some problems trying to clean up some of the older equipment that we have with this proposed regulation.

In the mid-1980's, diesel came in the coal mines in Virginia as a result of the action of the General Assembly. Thereafter, Pittston Coal Company, Westmoreland Coal Company, went out and bought inby face equipment, production equipment. These were fitted, they were permissible equipment, but they were fitted with water scrubbers, flame arrestors. The miners were told that those were scrubbers. That that was what that was for. They didn't -- they didn't really tell them what -- that it was a flame arrestor.

During -- during that mid-80's, the two- year period there between '85 and '88, the miners on those production crews became ill. Visibility became a factor. The blue haze in the cross cuts, they couldn't see. And finally, production dropped. Those coal companies decided, made a management decision to remove that face equipment because it was not productive because the miners couldn't deal with it. It even got to the point where they were putting dish washing liquid in the scrubbing box so that it would mask the fumes, as miners call it, that was coming from the exhaust. And they told them that would take care of it. And which it didn't and therefore, that's how the production equipment was removed. It was not removed by the agencies. It was removed voluntarily by the employees there because of production. The -- since that period of time,

most of the equipment in Virginia is used outby for personnel carriers, supply motors, trans, that's the extent of that today.

From that period of time when those miners were being exposed and that face equipment was being used, the outcry went back to the General Assembly. The General Assembly at that time formed a joint subcommittee in 1988 to study the effects of using diesel engines in underground mines. And the thrust of that committee and recommendations was that the United States Secretary of Labor be requested to expedite the research, design and testing of particulate measuring devices, and diesel engine particulate filters for use in underground coal mines. Okay, that -- that -- that was done. The Secretary at that time was Ann, oh, I can't pronounce it, but the report I'll submit it.

The thrust of that report was to the Secretary, the committee recommends appropriate regulation by two means. First, the agency should implement a system to control the amount of diesel particulate matter where diesel equipment is used underground. Ideally, this regulatory scheme should be implemented, a system to monitor and control diesel particulate. That's 10 years ago. And we're still here trying to deal with that issue.

Then, NIOSH releases a report in 1988. And the thrust of that report. NIOSH recommends that producers of

diesel engines disseminate this current information to their customers and that users of diesel-powered equipment disseminate this current information to the workers. NIOSH also recommends that professional and trade associations and unions inform their members of the new findings of potential carcinogenic hazards of exposure to diesel engine emissions. And that all available preventive efforts, including available engineering controls, work practices, be vigorously implemented to minimize exposure of workers to diesel exhaust. And, again, that was 10 years ago.

And as -- as Virginia progressed, and I have been a member of that Board for 6-1/2 years, through four governors. We had progressed to the point where our regulations read at the first part of this year and I'll read it to you, that and this is, General Requirements Part I, Diesel Equipment Approval. Diesel-powered equipment will not be permitted underground without approval, period. Approval shall be conditioned upon compliance with these regulations and be establishing that diesel equipment used in underground coal mines be equipped with the most up-to-date, approved, available diesel engine exhaust after-treatment packages that control emission levels in the surrounding mine environment. That was our regulation up until the agency released its proposed regulations.

And at that time, we had a comparison of Virginia

regulations versus MSHA regulations. That was our proposal versus what was on the decks with MSHA. Well since MSHA is the lead agency on regulations, the Division of Mines in Virginia went back to draft a proposal that would set forth the guidelines of this paragraph. So what we got in return after April 16, 1998, was an identical draft proposal which superseded what I just read to you that we adopted in -- in -- prior to April of the current proposal that MSHA had, which is a reduction of not filtering all pieces of equipment but heavy duty and outby -- heavy duty outby.

So, that really -- that really bothers me as a member of a committee such as you have before you of six years worth of work trying to improve Virginia's diesel equipment. And now we are going to end up with all of the 80% of the equipment that we were trying to do something with in Virginia that, if this regulation goes through and it doesn't address that, then the miners such as the lady that spoke to you, Linda Lester, her mine will not adversely be affected by this. But I will submit this for the record and I'll answer any questions you may have.

MR. TOMB: Thank you. Any questions?

MS. WESDOCK: Mr. Kennedy, I have one question for you. I think the mike is off. Do you feel that this proposal will be restricting Virginia from implementing a more stricter proposal. Why do you feel that way?

MR. KENNEDY: Its the politics of legislating. Usually a state agency will take the federal agency's lead on regulatory actions. Because in the industry, there is always a cry of duplication. Duplicate inspections, duplicate sets of regulations. And that has been the case. As far as Virginia, what -- what instituted this regulatory review was the fact that we had an Executive Order from the governor at that time to review all regulations in Virginia. So that opened up the process to where we could go in and try to fix some of the things in the regulation to try and address the -- the emissions that were in our underground coal mines because of diesel equipment.

Under that regulation -- I mean under the Executive Order, it specifically says that, you know, we aren't supposed to duplicate. If we're duplicating federal regulation, then it needs to be omitted. So now that we've proposed something that was more stringent, then the federal agency comes back and says that, you know, with the reg that's less stringent, then the state agency is not going to do that. They are not going to take the more stringent -- even though I'm a member of that Board, I only have one vote as far as requiring that. And our Board set-up is three members from labor, three members from industry and three citizens at-large. That's basically how that's going to work. Unless you require something more stringent than what

you have on the proposals as far as its been released so far.

MS. WESDOCK: Just to clarify, the -- the federal law does not pre-empt the state law. Okay, so you -- so Virginia can have a stricter law. It just can't have a more -- I mean a less stricter law than the federal. But if they were to decide to pass, you know, in the future a law regarding diesel, it can be stricter than the federal law. We don't pre-empt that.

MR. KENNEDY: The -- the state agency in Virginia, as far as the regulatory process, takes MSHA's lead. So what it's going to boil down to is whatever this committee comes up with the final rule, then that's what the -- the Coal Miner's Safety Board in Virginia is going to have the exact same language. So, you know, what I'm saying is we had everything covered. Inby, outby, heavy duty, light duty until this proposal came at mid-year. And, you know, like I said we have to go through the administrative process act which calls for public hearings and that will be forthcoming. And then it will be finalized and sent to the governor for approval. And whatever this Board does, then it's going to affect the State of Virginia.

MR. TOMB: Rob.

MR. HANEY: Did you have any exposure measurements outby areas of Virginia coal mines?

MR. KENNEDY: They are different levels depending upon the ventilation systems. Most of the mines in Virginia now, except for the one Consol mine that we have as far as represented by the United Mineworkers, has a unique, vast, complex ventilation system with two sets of bag cot fans that -- that have millions of cubic feet of air going into the mines. But most of the mines in Virginia are smaller hilltop mines with limited ventilation. And those are the mines that have the outby equipment for transportation and transportation of supplies and materials. Those are the problems. Some of the Pittston mines are good examples. They have problems and are being cited because of their ventilation and quantities outby. And -- and those areas which are in our regulations now, our diesel regulations State of Virginia requires -- requirements are a little bit higher than what MSHA requires as far as quantities and numbers of pieces of equipment which you will see in the comparison. But, for the most part in Virginia, the smaller mines are the problem mines. And all the vast number that make up the largest amount of the typical mines in Virginia with diesel equipment in them.

MR. HANEY: Okay, the question was, did you have any diesel particulate exposure measurements?

MR. KENNEDY: No. No, sir. I do not.

MR. HANEY: Okay, thank you.

MR. SASEEN: Did you ever have any -- did they ever more filters on water scrubbers back when they had the face equipment.

MR. KENNEDY: I don't -- I don't think they did. I don't think they did. The only thing they did was as far as the eye irritant and the sore throat irritant, they just added some kind of detergent to the -- to the scrubber to mask the diesel emissions. And it just got to the point where the miners couldn't produce coal because of visibility and also the -- the illness that they had while working. And then it was the operator just decided to take it out of the mine. And that was the case and has been the case in Virginia with the unfiltered raw diesel exhaust.

MR. SASEEN: Thank you.

MR. TOMB: One other question. Are you submitting a copy of the proposed -- what you proposed into the record?

MR. KENNEDY: Yes.

MR. TOMB: Thank you very much, Mr. Kennedy.

MR. KENNEDY: Thank you.

MR. TOMB: The next presentation will be made by Mr. David Bowling.

MR. BOWLING: My name is David Bowling, that's B-o-w-l-i-n-g. I'm Manager of Mechanical Engineering for ALE Corporation. We're just outside of Beckley. ALE Corporation appreciates the opportunity to be here today and

offer comments regarding the proposed rule.

We realize a great deal of time and effort has been expended by MSHA and others involved in the process to gather and interpret information and determine methods that will provide the safest and most healthful environment for our nation's coal miners. Without the miners and their skills, it would be impossible for our mines to operate. And the large number of us who depend on the coal mines for our livelihood would be looking at a drastic change in our lives.

We in the mining community must also realize that we continue to have this opportunity to earn a living because the product we provide has market value. In recent years, foreign competition and cost of operation have continued to make it difficult for domestic coal companies to remain profitable. We must all look at ways that we can help keep our coal market competitive or face the reality that many of us may need to look for another means of making a living. The challenge is to ensure safety while maintaining production and profitability.

The main points of concern to ALE Corporation in the proposed rule are in the application of Part 72.500, Diesel Particulate Filtration Systems. Our first point is the practicality of a system capable of removing, on average at least 95% of diesel particulate matter by mass. Over the

past two years, a great deal of research has been done in this regard by members of the West Virginia Diesel Commission and interested miners -- members of the mining community.

As a result of the test and research conducted, members of the Commission and industry felt that it was reasonable and more attainable to have -- I'm sorry. As a result of the test and research conducted, members of the Commission and the industry felt that a reasonable and more attainable number was 70%. Though technology continues to advance in the direction of cleaner systems, we do not feel that sufficient evidence exists that 95% is a number that can be consistently and repeatedly attained by any filtration system available for use in our machines.

Our second point is cost. At ALE Corporation, we have recently been exploring the possibility of making one of our underground mobile product which is currently approved for outby use permissible for inby use. The machine would require a scrubber or something similar. The current price of the non-permissible machine without such a system is around $70,000. The cost on the available systems that we have priced, will increase the selling price in the range of $50,000. This cost added to the additional cost associated with having the machine approved could possibly be justified on a piece of inby equipment that is fully

permissible.

However, depending on the machine's configuration, it may come under the Part 75.1908A definition for heavy duty outby equipment. If the proposed rule, and 95% requirement are put into effect, the exhaust treatment system will be required and the price of the machine currently selling for $70,000 will jump to $120,000, an increase of 71%. This cost increase could be avoided without sacrificing site -- without sacrificing safety. If the proposed rule took into account the use of more efficient engines and increases in ventilation rates. To a small operator, this could easily mean the difference between buying or not buying a piece of equipment that could help make their operation more productive and less expensive, and most importantly, safer.

We appreciate that MSHA recognizes that light duty outby equipment does not require such drastic measures as those recommended for inby permissible and heavy duty outby equipment. The difference in duty cycles and typically lower horsepowers involved make this a very wise decision. We ask MSHA to take these issues into account and rethink the proposed rule in regard to the 95% particulate removal and reconsider its position on credit for increased ventilation rates and higher engine efficiency. Thank you.

MR. TOMB: Any questions?

MR. SASEEN: Mr. Bowling, can you tell me what engine you were considering going from non-permissible to permissible unit?

MR. BOWLING: We are looking at Isuzu QD-100.

MR. SASEEN: QD-100?

MR. BOWLING: Yes.

MR. TOMB: I'm thinking. I lost my track when he asked that question. Oh, on your 70% filter that you mentioned. What type of filter is that?

MR. BOWLING: We're just -- at this point we haven't actually picked the filter --

MR. TOMB: What are you basing your -- what are your maximum --

MR. BOWLING: The 70%?

MR. TOMB: Yes.

MR. BOWLING: The findings of the West Virginia Diesel Commission studies.

MR. TOMB: What was presented here today?

MR. BOWLING: Yes.

MR. TOMB: Very good. Thank you, Mr. Bowling.

MR. FORD: I have a question. On this scrubber, does this have a paper filter?

MR. BOWLING: It would have to have a paper filter, yes.

MR. TOMB: Go ahead.

MR. HANEY: In selecting of the engine, have you considered the MSHA PI's in your choice of engine for that piece of equipment?

MR. BOWLING: MSHA PI's?

MR. HANEY: Particulate indexes?

MR. BOWLING: Yes. I've tried to -- there's a limitation on the machine due to size and what's currently available as far as the inby units. And the engines that are available are quite large.

MR. HANEY: Well, I was just wondering because you picked an engine with twice the PI of any other engine out there.

MR. BOWLING: Oh, yes. It's also the smallest.

MR. TOMB: Any other questions? You're going to submit a copy of your testimony?

MR. BOWLING: That will be fine.

MR. TOMB: And thank you very much for your presentation, Mr. Bowling. Our next presenter will be Mr. Smith for Jeffrey Mining Products.

MR. SMITH: Ladies and gentlemen, Mr. Chairman. I would like the opportunity to spell my name. I really appreciate it. (Laughter.) J-o-h-n S-m-i-t-h. Most people ask me to prove it and not to spell it. I have been employed by Jeffrey Manufacturing off and on for about 30 years. Jeffrey is the manufacturer of permissible diesel

underground equipment. In the interim, I was operating for a company called Getman who manufactures primarily outby non-permissible equipment. I have 30 years experience in both types of machinery, directly involved in designing engine treatment systems, for treatment and after treatment systems.

Jeffrey currently manufactures both wet and dry scrubbing systems that apply to the engines which Dr. Thakur pointed out. Basically there are only two manufacturers of permissible engines that are used regularly today and that's Caterpillar and MWM Duetz. There are two Caterpillar models used regularly and one Duetz model. One thing the industry is faced with today, these engines are old technology, antiquated engines. They have no electronic controls, they have no turbo-charging. They are low pressure fuel injection. And the reason is that's what we've used for the last 40 years.

A bomb was just dropped on the industry recently. Next month is the last year the MWM Duetz will be produced. The reason came from Duetz saying they only produce 6,000 of these engines worldwide and they are selling just around 60 of them in the United States. And that's not enough for an engine manufacturer to continue manufacturing an engine, even though its been a very clean engine, a very reliable engine. We're faced with the opportunity of finding new

engines, particularly in the 100 horsepower, low profile. There is none immediately available which is approved.

So we have two directions to go. We can find another old-fashioned, perhaps a much dirtier engine, which will certainly make getting a 95% filter target pretty easy. Or we can look at newer technologies. The high pressure fuel injection. That atomizes the fuel to a much finer extent, meaning you get more complete burning, less particulate matter. Electronic controls on the engine on the fuel injection rack. This has never been permitted previously. And turbo-charging to find a way of controlling the surface temperature of a turbo-charger. With this new engine technology, we can reduce particulate matter probably by two-thirds. But now if we start with a filter which hasn't been designed yet, a 95% efficient filter, now all of a sudden if we try with this new engine technology, it may only be a 30% emission filter. The filter regulation will put us out.

If we decide to establish a target in milligrams or micrograms per cubic meter, then we are not penalized for using new technology for developing new cleaner engines keeping particulate matter down in the mines which is the critical thing. Plus using an engine which is available. Perhaps the biggest problem we face today is that the mining industry cannot drive the engine manufacturers. As an

example, Hercules built an engine a while back. It was ideal. It was a horizontally opposed six. Now Hercules is a small engine builder. And we said, this is the perfect engine for us. Its got the pre-combustion chamber for low emissions, its got the right dimensions. We would like to use this engine in mining. Of course we need a water-cooled manifold and a few other accessories on it. And they said, fine, we would be happy to, how many engines would you use? And I said, well, we as a company would use probably 25 or 30. The industry would probably use 75 to 100. And they said, let's see a hundred a week, that would probably give us about the right production for a year. And I said, no, I'm talking about the total production per year. They smiled and said it was nice meeting you. We cannot drive the engine manufacturers. We have to use what's available. The engine manufacturers today are putting their efforts behind transportation engines. This is where the market is. This is where the new technology is. If we are going to stay up with the new technology, we have to follow them. Unfortunately, we can't be a leader. The only thing we lead in is flame-proofing technology from an existing engine. We take the engine they've already built and we flame-proof it. That we can do. Because they are not interested. That's a small quantity operation.

So basically the point I'm getting to, we've got

to stay up with the new technology. We've got to keep introducing cleaner engines. We are not going to do it if we're hampered by a 95% filter requirement to develop a new filter that only works on dirty engines. We will gain, if we have a grams per cubic meter target to shoot for. I might point out that either one is difficult to measure underground. Whether you are doing a particulate coming out of an engine or the delta particulate across the filter, its primarily laboratory stuff. It probably will not be maintained underground. But you can come close to maintaining it. So I think with laboratory tests, we will be able to achieve a fairly low gram per cubic meter standard, but certainly never the 95% filter efficiency.

I had a couple other points that I wanted to address and they came from comments on the panel, since I have designed both wet and dry scrubbers for several different engines. People were talking about the cost of a wet scrubber system or the cost of a filtration system which requires cooling the exhaust before you get there if you're going to have any high efficiency. And the figures were quoted, and rightly so. I heard good figures today from 30 to $35,000 additional for the smaller system to $60,000 for the larger system.

This is really making a non-permissible machine a permissible machine. This is not just adding a filtration

system to it. You are talking about heavy duty outby. You don't need all the thermal shut-downs and what have you involved. This could probably be done at a much lower cost. It just hasn't been done yet. If you have a permissible machine, you are going to add a filter to it. It has 50 or 60% of the requirements already in place. Now you simply have the development of the filter, the temperature controls added to existing shut-downs which have to be done. This can be done at a relatively low cost.

Now I get to another point is timing. Like I say, Jeffrey and the United States in coal have about 300 machines out there. Four different generations. You're saying 18 months to convert machines after promulgation to a new filtration system and what have you. This is a reasonable figure for the current production machines. If we would have to go back and revisit machines made 10, 15, 20 years ago, develop prototypes for testing of the old machines, yes, the cost is high. But there is no way that can be done concurrently because there aren't that many experts in the field to develop these systems. There's a handful of experts. And they can't be addressing five or six different machines at the same time. So I'm saying that the 18 months is probably reasonable for current production machines. It isn't reasonable for catching up with all the machines in the field. My best guess is 30 to 36 months to

catch up with 75% of the machines in the field.

MR. TOMB: What -- what was that figure?

MR. SMITH: I'm guessing.

MR. TOMB: I know.

MR. SMITH: Thirty to thirty-six months would get about 75% of the machines. And the other 25 would probably end up being scrapped. They are probably 20, 25 years old and they have been rebuilt three or four times and the economic viability probably isn't there to achieve that. And with outby equipment we are looking at 30 months. I haven't started yet to address, other than just the general thought, exhaust cooling methods and scrubbing methods to get temperatures down to where a paper filter can be used. And you're not going to achieve these percentages with ceramic or any other newer material today. When I say paper, I'm talking about fibrous, throw-away type of elements. Paper is, of course, a misnomer when you're talking about high temperature filters that are primarily polyester and fiberglass. They look like paper, they feel like paper, you can't tear it. And there are other materials available.

I think I may have had another question which I wanted to address. That was a question that came up earlier on catalytic converters. I can't recall who asked that question specifically. If anything had been done with

testing catalytic converters on light duty outby equipment, I'm talking about efficiency or thermal efficiency. As you know, a catalytic converter does not operate well at all until it achieves a certain temperature. Now they are getting lower. Generally you get 80 to 90% catalytic action efficiency in the range of 650 to 850 degrees F. Most of your light duty equipment, all we're doing is we're scaling the size down. That equipment generally is transport equipment. It moves from place to place and it's using its small horsepower under fairly heavy load. It's generating high temperatures for a period of time which can make it efficient. When it is sitting there idling, the catalytic converter does nothing.

Locomotives are ideal for catalytic converters. The long hauls, high loads, high temperatures. The worst catalytic converter use is in face equipment. It -- they are virtually useless. Now you run into temperature control. You have water jacket and manifold cooling the exhaust. You have -- you have to water jacket or insulate the catalytic converter. And now the temperatures on a machine which may go 200 to 500 feet maximum distance, they never get up to the 600 to 850 degrees F. Many times they are sitting around 250 to 300. Catalytic converters are absolutely useless at these temperatures. So it's really the face equipment is the problem, not the light duty

equipment makes use of catalytic converters.

I think I may have addressed virtually the questions that the panel had previously. So I have no other comments to make.

MR. TOMB: Thank you very much. Any questions? George, go ahead.

MR. SASEEN: Mr. Smith, I presume.

MR. SMITH: (Laughter.) Thanks, George.

MR. SASEEN: Could you give us the cost of adding the paper, pleated type filter to your current production, what scrubber systems.

MR. SMITH: The wet scrubber system and it's just going to be rough. I've been totally in engineering for the past few years and not involved in the marketing. But basically, what it entails, I can tell you that better. We have the second generation electronic shut-down already programmed to receive the temperature sensor. It entails adding a special pipe. It is a fairly elaborate pipe that has a water trap in it and a temperature sensor. We have an exhaust gas sampling port in it. And we have an addition to the water scrubber which is a dryer. This means the scrubber can't be changed in the field. We have to exchange scrubbers. It has to be remanufactured to add the dryer to it so that the filter element doesn't become sopping wet and fail to function. And then it has a grill modification to

the vehicle because the filter now sticks out the front of the machine and basically a diffuser. So basically the parts are relatively simple. I would take a stab and say $3,500 would supply the parts. The labor, its modification labor. They wouldn't need a new bumper grill arrangement. They could go in with a torch and modify and flame cut. That's probably going to be $500 or $600 to do that. So basically, you aren't looking at a great deal of expense to modify and existing piece of permissible equipment.

MR. SASEEN: Would that be on the MWM or on the CAT 3306?

MR. SMITH: That would be on the MWM and probably the old 3306 in the 4114 models. It would be very similar in cost. In the new system, which is a dry system, both on the MWM and the 3306 basically, this depends on what the regulation ends up being. If its 95%, to retrofit that may be a problem. If we are doing it with the existing filters, its already a part of those machines. The filter is part of the approval. So there is a filter but like Dr. Thakur said, as the engine gets old and decrepit and starts burning oil, the rate efficiency goes up. As the filter gets dirty, filter efficiency numbers go up. So if we're looking at efficiency percent of capture, there may have to be quite a bit of redesign involved if we stay with something like that, like the 95%. Did that answer it, George.

MR. SASEEN: Yes.

MR. TOMB: Ron?

MR. FORD: That wet scrubber, $3,500 for parts and %600 for labor, that's putting it on a -- a -- equipment that is already permissible?

MR. SMITH: Yes, that's correct.

MR. FORD: Okay.

MR. SMITH: And that filter --

MR. FORD: Efficiency air would be what?

MR. SMITH: I'm sorry?

MR. FORD: What would be the efficiency rating?

MR. SMITH: We would guess, and we had some bad efficiency numbers and this is just a guess. We have been able to hit with the complete system over 90%. But that's not the filter. That's the complete system. This has a water scrubber on it, mind you. And the water scrubber will remove 30 t 35% of particulate before it ever gets to the filter. But that is the top limit that has been achieved. More realistically, I think we would find this actually lower than that. Without the water scrubber, of course you would have to use a different media. Because you could use low temperature media, low cost media with the water scrubber. With a dry scrubber, you can't. You have to use a high cost media. This is where you use the polyester fiberglass material. This is the $120 filter as opposed to

the $40 filter.

MR. FORD: Is that a price range, $3,500 about the same if you were going to put it onto a piece of outby equipment?

MR. SMITH: I can only take a stab. I'm no expert on the price and somebody might (interference to the tape). If I were to develop the system for outby, it would be a totally different type of system. It would use hot exhaust manifolds, hot exhaust pipes. It would probably have either a water bath or air-to-air heat exchanger, probably some outside agitation method, maybe a hydraulic pump, and a filter system and that would probably be in the range of $10 to $12,000. That's off the top of my head.

MR. FORD: Do you make filtration systems for what we talked about -- I mean your company, that is -- for changing a non-permissible machine to a permissible?

MR. SMITH: Yes.

MR. FORD: And what's the cost there?

MR. SMITH: The cost there is for the MWM engine. Again, this is past history since that engine probably we'll have enough to sell the machines through next year and then we're out of business with that engine. But using that engine going from non-permissible to permissible and filtered, is going to be in the neighborhood of $40,000. Maybe slightly under that, $35 to $40.

MR. FORD: And we're just talking the purchase cost here, not the installation?

MR. SMITH: That's correct.

MR. FORD: I'm sorry, staying with the $12,000 also for the outby?

MR. SMITH: Yes, that's correct.

MR. FORD: Okay. Let me ask you a different type of question. How many manufacturers are there, if you know this answer, of wet and dry scrubber systems.

MR. SMITH: Well, I know of in the United States, two manufacturers of dry systems. And that's Jeffrey who uses flame technology and the DST that you've heard about.

MR. FORD: So, if any type of rule came out concerning systems like these to be put on diesel equipment in the United States, there would basically be two manufacturers to service the U.S. market.

MR. SMITH: That is correct.

MR. FORD: Can you comment on it at all, maybe you can't, but on what would this do to the -- it doesn't seem to me it would be very competitive in driving down the prices that are being quoted here. Is there something I'm not seeing?

MR. SMITH: No, actually I would think that most of this has been give-away because we translate it in the price of the machine. We don't sell -- I take that back, we

do when we have sold power packs which are flame proof. We sold them to several manufacturers, utility vehicle manufacturers. This is not the price they would pay nor the price they would resell it for. What I'm looking at is the price for us to put it on our own equipment.

Now the permissible equipment we have sells for between $275,000 to $300 -- call if $400,000. So basically, this is simply an added cost to that figure. And this has really nothing to do with the competitive nature. The dry scrubber and I've got on record several places where this is not the fantasy. The wet scrubber has an awful lot of advantages to it. Its older technology, it's been around for a long time, but they are having troubles in Australia with dry scrubbers right now. Simply because the generate such a tremendous amount of heat in the mine where they're working in Queensland and their temperatures -- their ambient temperatures in the mine are 400 -- 40 degrees C. And you have dry scrubbers putting out tremendous volumes.

I won't to into the BTU load. But they were raising the ambient temperature at 40 degrees C five degrees. And in Fahrenheit, that's going tom from 112 degrees F up to 130. And down the mine it's just unbearable conditions. The wet scrubber does not have this condition because much of the heat goes into heat of evaporation. That's the transfer into the water itself. And then the

fact that when the water evaporates, it cools. So the wet scrubber doesn't require this tremendous fan. It doesn't take the horsepower of a dry system. It does require more maintenance. So there are tradeoffs. Not that the wet system Is the fantasy. Or there's a hybrid system they are using tin the U.K. which may have some advantages. There are quite a few manufacturers of wet systems.

MR. FORD: Yes, I didn't talk about any foreign manufacturers, but one -- one last question about the $40,000 figure for making the dry system. Could you tell me the efficiency rating there?

MR. SMITH: I'm sorry, what kind of rating?

MR. FORD: The efficiency rating. What would that be?

MR. SMITH: We're talking about filters?

MR. FORD: Yes.

MR. SMITH: Or the complete system? Well the filter itself, I would guess on an average, even though we could probably peak around 90. On an average it would probably be in the 80 to 85% range.

MR. FORD: Thank you.

MR. SMITH: And the wet system is higher.

MR. HANEY: You said that 95% filters haven't been designed. Did you mean they haven't been designed or they haven't been packaged?

MR. SMITH: They have not been made practical.

MR. HANEY: Okay.

MR. SMITH: Yes, you are correct on that. They have not been packaged. This media which will do with large sheets of media which cannot be folded because it cracks and if you could make a large set of screens, they could float. This efficiency could not be put on a mobile piece of equipment.

MR. HANEY: And if you would give a higher efficiency, what would that do? Could you design the engine so it wouldn't have an adverse reaction on the back pressure?

MR. SMITH: All you have to do when you have more efficiency in the filter is get more area, basically. And the more area is the -- what determines what the back pressure is going to be. Now, as it begins to plug up and you throw this filter away. Now you've gone from a $40 filter to a $400 filter. And if you have to throw two of them away each shift, it becomes a little impractical. And that's quite possibly what it would amount to.

What we have found and this is a note of ratification, at seal level, our current filter on our large machine is $120 filter. They can get 5-1/2 to 8 shifts out of it before they change it. And basically it is a throw-away. Even though there are people who have washed the

filters and put them back in service for shorter life. At high altitudes and we were running

*(Tape 6B Tape is dragging.)

MR. McKINNEY: You're going to lose door change, right?

MR. SMITH: Yes.

MR. McKINNEY: And there had been one that looked very favorable that was using new technology, however, it wasn't quite suitable. Do you foresee anything that's on the new horizon that -- that is going to be able to use a new technology and be retrofitted for the toxin?

MR. SMITH: That's a very good question because it's one that I've been pondering with for the last eight months since we were told the MWM would no longer be manufactured because of small line. And since then I have approached people like Caterpillar, Perkins, Isuzu, MWM Brazil and we even brought one of these -- MWM Brazil is not Duetz. When MWM worldwide which is Manheim Work and Motors or Motor Perkins and Manheim, I guess, the German company that designed this engine. When they sold out to Duetz, the took the American distributorship, sold it out to the Duetz organizations and moved to Atlanta. In Germany, they sold it out, but their licensee and company in Brazil stayed there, stayed independent. So we still have MWM Brazil, sort of operating on their own. Very similar designs, of

course. They modernized this type of engine some time ago and, but its still an old-fashioned engine. This is a direct injection engine which is dirtier than the MWM 9166 we have been using. But with filter, it filtered awful good. And it's a compact engine, it has more modern features to it. But Duetz themselves, they would have to tell you what their plans are. All I can do is say I've argued with them at all levels to get their attention.

They have developed a new line of engines not for the mining industry because we're such an insignificant part of it. But for general industry as a whole, these engines use common rail fuel injectors with high pressure. When I talk about high pressure, we're going from 100, 150 feet PSI, what we use today, to 6,000 PSI. So now they can really atomize it in the altitude. This is one of the new technologies we need. It's only available in this new engine and other people's new engines.

The turbo-charging is a technology that's been around for a long time. Turbo-charging and after-cooling work very well, but turbo-charging -- turbo-chargers must run hot like catalytic converters must run hot. But for surface temperature control, as required by MSHA, we have to find a way of cooling it. We are going to lose some of the efficiency, but maybe if we insulate properly, we can minimize the efficiency loss and have surface temperature

control, turbo-charging and after cooling.

And, of course, electronic controls. Nobody will build a brand new engine today unless it does have electronic fuel controls. That's critical to change the timing, to adjust the amount of fuel for thermal conditions, for altitude and we can't use those today because basically they are not explosion proof. And most of them include them right in the engine or they'll put an LTV lineal solenoid on the back of the fuel rack. We have to find a way to encase that in an explosion proof box. Not that it can't be done, but I think that -- and approval of certification has expressed willingness to work with us on this. But these are the new technologies that we need. And here is a brand new engine built by Duetz, perfect application, probably only a third the output of particulate. But it requires a cooperative effort to achieve an approval for it.

MR. TOMB: That was a long 10 minute presentation.

MR. SMITH: I'm sorry about that. (Laughter.)

MR. TOMB: Any other questions? Okay, we'd like to thank you for the information you provided. And, thank you. That's all the presenters that I have on the sheets that I have. Is there anybody else who would like to make a presentation who was like overlooked or hasn't put in their name? (Pause.) Did I overlook you or you didn't put in your name?

MR. O'DELL: I thought I had signed up, but I didn't.

MR. TOMB: Oh, you didn't? Okay.

MR. O'DELL: My name is Dennis O'Dell, D-e-n-n-i-s O, apostrophe, capital D-e-l-l. And I'll try to make this quick because I know everybody wants to get out here. The areas that I cover are northern West Virginia, the State of Ohio and part of Pennsylvania. I have 22 years mining experience. I received my education from West Virginia Wesleyan College in Fairmont State in elementary education. I've also received additional training, 400 hours from the National Mine Academy in subjects ranging of all underground surface mine. Certified in the State of West Virginia as a foreman, Mine Foreman Fireboss, Certified Shop Foreman, Certified Surface Blaster. And I'm also a member of the Diesel Commission, West Virginia Diesel Commission. Was appointed by Governor Underwood in 1997 and my term expires in the year 2001.

I came before you today to ask that what we have thus far failed to do is to guarantee the protection of the health and safety of all the miners. In this year of 1998, almost 30 years after the '69 Act, we need to remember that the agency's main goal, the operator's main goal and our main goal is to protect the mine's most valuable resource and that's the miner. I would also like to maybe try to

clear some things that were said today as a reflective of part of the Diesel Commission. I hope you don't misunderstand or you did not misunderstand when those quotes were being made that was made from the operator's side of the Diesel Commission, not the side that represented the labor on the Diesel Commission.

Hearing all the comments given before you, you've heard testimony by the operators that it can't be done. Ninety-five percent is unreasonable, technology is not there and many other arguments, not only from the operator's standpoint but some of the manufacturer's standpoint. And I know that because I've heard the same arguments on my position as the West Virginia Diesel Commissioner.

In those meetings that we held in the eight or nine months that we met, we were told by the operators initially that a .3 dpm standard was sufficient and that a 70% efficiency filter would also be sufficient. Today I heard from Dr. Thakur and Chris that that .03 has not grown to a .05 dpm standard. We argued that the standard should be the same as the PA rule based on the testing, improving technology of what Pennsylvania has adopted in their law. We argued that the health effects that the diesel particulate matter cause based on test and research done by numerous people and also by NIOSH.

Today we heard control the problem that affects

eyes that affects the throat, let's worry about that today. Cancer is a long term and that kind of thinking scares me. We must go by science and available we were told. So when we ask them to show us what test, what science, or what technology proved that a .03 diesel particulate matter standards, I guess now a .05 dpm standard, and a 70% filer efficiency was the best we could do, they had none. I'm telling you, when we sat in the room and we talked about this, this is how it panned out.

There was nothing more than a convenience number on their part based on who they represent. If you take the air quality that a larger mine can produce, then you take the air qualities that a small mine can produce and you average out those numbers, this is the number they came up with that will allow them to use diesel in underground coal mines without filters and try to control the dpm with air or ventilation. There is no science to that, there is no safety factors put into that. It's just nothing more than a mere convenience. And guess what, you've heard testimony today that they can't control the methane, they can't control the dust with ventilation without being violated. We had many miners line up today and tell you the numerous, numerous violations written at their mines on ventilation violations. And now they want to throw diesel in the mine.

Well I submit to you today that MSHA is on the

right track, but MSHA has also failed. You suggest a 95% efficient filter on inby equipment and heavy duty outby equipment. But what you failed to really address was a standard or a proposed rule for the remaining two-thirds of the equipment used in the mines. Somehow two-thirds of the equipment that will be used in a coal mine fell through the cracks. Two-thirds of the equipment. That's a large number that the miners will be, if this proposed rule is adopted, still exposed to. Two-thirds of the equipment spewing out cancer causing contaminants in the air. Oh, but I guess we need to be sure that we don't bog the operators down with a rule that will be an economic hardship. If its one thing that I've learned since I became an International Health and Safety Rep, it is a big adjustment for me to go from a rank and file miner to International Health and Safety Representative. I'm somewhat of an emotional person with people that I have close ties with. Families that I've seen die in the coal mines. See, I come from the area. My wife lived at the Number 9 coal camp. She lost a cousin in the Number 9 mine. Her father was going to work when the Number 9 mine exploded. I worked with people at Robin's Run mine who had family members that they lost at the Number 9 mine. So it's a very emotional, very emotional issue. Both my grandfathers died of black lung. They were coal miners.

And sometimes what I've learned as I've come on staff as an International Health and Safety Representative, that a lot of rules and regulations are boiled down to an economic issue. It can't be an economic hardship on anybody. The cost factor. And it's tough for me to take. So I asked myself and I ask you to ask yourself the same questions that are running through my mind. Because, really, I'm coal miner. I mean I'm just a coal miner. What is the human life worth? We can't put a cost on that. What kind of cost will this have on the state's compensation department, with the claims that will be processed. How much of a cost will be on the operator with the health coverages when miners are being treated for illnesses caused by diesel particulate matter. What about the losses because anybody and everybody can get a lawyer for anything. So what about those lawsuits filed by a family member for a wrongful death that could have been prevented if they were adequately protected with something in the mine.

You'll hear and read test results of our Commission at WVU what was done, and I caution you to understand this. These tests were conducted on a small piece of the pie, due to what equipment was made available to the University, by the funds available and by those gracious donations by the coal operators. And you'll find some traumas as well as some failures in these tests. If

you'll look at these tests and you take some time to talk to the people who helped conduct the test. And I hope you follow-up with what you said you were going to do today. That you talk to Dr. Godham. I would invite you to talk to Dan some more. Dan was a key man in doing those tests. They'll tell you why some of those things failed, because of faulty equipment, because of the time factor, because of not being able to get the equipment in there, or what we needed to do our testing. I mean this whole thing was crammed in our laps in an eight or nine month period of hurry-up, hurry-up, hurry-up, let's get a standard and do this testing. And that's almost impossible to do. Look at the test results. Some people look at the promising end. The test results on the LPU2. Note the dpm on that is actually 20% lower than the PA standard. And also recognize that this is one of the dirtiest engines out there today. But they made something work because somebody had a dream to do something to help protect the health and safety of the miners.

I would ask you to go the internet. I've got an 18 year old daughter and a 10 year old daughter that has taught me this wonderful thing about an internet computer. I didn't have the luxury when I was in college in basic computer, but not like our kids today. So they take me to our computer at the house and they get me on the internet

and they say what do you want to look at, Dad. And I say, let me look at some diesel. So we searched. And my 10 year old and my 18 old year. And lo and behold we pull up this page of dieselnet dot com. It's amazing what's on there. You would be surprised at the information. The vast of information out there in the world, not in our little corner of West Virginia where we had a limited amount of things to work with, but the vast number of filters, equipment, what's being done across the whole universe on diesels. Just on that little screen. And you can pull that stuff up.

Truthfully I bet, if we would all really agree, the best exposure level to dpm is no exposure at all. Everyone in this room, I'm sure, is concerned. And we all should be concerned. I have documents that I was going to give to you today, but probably most of those documents were turned in. Here's an IEFF from off of the diesel net. IEFF, Department of Occupational Health and Safety. And it summarizes. And it says, the conclusive body of evidence that documents that carcinogenic, the tumorogenic, mutonogenic potential of diesel exhaust. There's evidence that supports the conclusion that human exposure to diesel exhaust may have an association with the development of lung cancer.

I've got a report here from -- that's amazing, OSHA. OSHA is looking at diesel. Diesel exhaust is a

persuasive airborne contaminant in the workplace where diesel powered equipment is used. Due to expanding use of diesel equipment, more and more workers are exposed to diesel exhaust. Over a million workers exposed to diesel exhaust face the risk of adverse health effects ranging from headaches to nausea, to cancer and respiratory disease. And those type of workers are mine workers, bridge and tunnel workers, railroad workers, loading dock workers, truck drivers, material handling machine operators, farm workers, auto, truck, bus maintenance garage workers, and employees. And they say in this report the studies show exposed workers have an elevated risk of lung cancer.

Here's an interesting one, Mobilizing The Region Publication, The New York Assembly Hearing. And they had this hearing and it was to dump diesel. The New York State Assembly Environmental Conservation and Corporation Committee investigated health impacts of diesel soot and New York City transit continued purchase of diesel buses. Testimony by public health experts by Harlem Hospital, the Columbia University School of Public Health and the New York University Medical Center outlined compelling reasons to ban diesel buses. And the reason they say it is because the particulates from the buses are small enough to lose respiratory defense mechanism, they are highly toxic and are admitted to breathing levels. The Commissioner from the DEP

reports that even the most modern buses emit nine times the particulate soot as a natural gas bus.

You've heard reports today from individuals about what the National Institute of Occupational Safety and Health Report says on the risk assessment. The California Scientific Review Panel, April 23, 1998, you've heard what that says. April 10, 1998, the U.S. Environmental Protection Agency. You've heard reports of what they said. The Vert Study that was brought up today. It's very, very interesting. I hope you take the time to read it. And if you'll notice in its conclusion -- I'd like to read this real quick to you. Neither reformulated fuel nor new lubricants, nor oxidation catalytic converters permit sufficient entailment by the particulate emissions. Further engine development hold no promise to effectively curtail the ultrafine particle emissions through improved fuel mixture preparation and combustion. Gas filters are now able to indespondently curtail the ultrafine particulates concentration in exhaust gas by a factor of 100 to 1,000. This is valid for particulates of all sizes down to the range of 10 nanometers per smoke. Iron and serum based fuel additives reinforce particular trap technology. They curtail the raw emissions and together with the traps, do not form secondary emissions such as ash emissions. They also do not form dioxins and furates. The filter technology

is therefore technically feasible, controllable in the field and cost effective. Read this please. Read the whole report. It's very, very interesting.

Another report, I don't know if its been submitted but I'm going to submit all of this at the end -- when I'm done. This is Diesel Exhaust Hazards by the Windsor Occupational Safety and Health Council. And it goes into detail why they think diesel exhaust is hazardous to people in the work places. And I'm not going to read it. I will submit it if you'll promise somebody will take a look at it, because I know it's getting -- it's 5 o'clock and the whistle is blowing.

But let me just real quickly and briefly finish up with this. And this is a story about the struggle for a safe workplace. And this is what we're all about. This is what you're about, this is what I'm about. And I hope that the manufacturers and the coal companies are about this. It's being able to have a safe workplace. Two of the major obstacles faced by workers in their fight for a safe workplace are the difficulties they face in convincing management of the harmful effects of certain substances and achieving positive action as a result of these findings.

At the Windsor Salt Mines, for example, the diesel emissions were so thick at times, that it literally hung in the air like fog. Workers were complaining of eye and

throat irritation, coughing up black spitum, and experiencing unusual tiredness and headaches. They knew something was wrong, but turning suspicion into proof was a very long and often discouraging process. Even more frustrating, however, was their battle to get management to do something about these conditions. Even though workers' research led to some very alarming discoveries. The miners' fight really began, and get this, 1963 when the union committee lodged a formal complaint about the smoke -- the smoke to the company and to the Department of Mines. They were told that the smoke problem was a seasonal thing. That increased humidity in the summer was making the situation worse, and that with a simple adjustment of a fan or the relocation of a bulkhead, the matter would take care of itself.

Since that time, scientists at the Environmental Protection Agency in the U.S. have learned that various components of diesel exhaust such as the polynuclear aeromatics, aldahydes and benzopyrene are known to be respira -- are know to be respirable with the increased incidents of lung, nasal and skin cancer. You heard about the Ames test. They found in respirator filters and the soot was found to be actively mutanogenic, that is the diesel particulate altered DNA in living cells created a condition which may cause cancer and birth defects.

Frustrated, repeated attempts to convince the company the smoke rule was a problem failed. They didn't get any improvements and when the poor air quality forced workers to go to the surface for fresh air, they were accused of staging illegal wildcat strikes and were ordered back to work. Finally, 1977, 14 years after they first brought this to their attention, 14 years the first formal complaint had been lodged, the miners called in the Ministry of Labor and insisted that air quality test be carried out. The government representative test only for carbon monoxide and nitrogen dioxide, gases that are known to cause harm if breathed in concentrated doses.

Respirators aren't any protection against this. They found out that wearing respirators, it still passed through this. And it goes on. And it just says that they continued to this day -- to this day from 1963 to battle this problem without any -- anything happening to help them. As a member of the West Virginia Diesel Commission, I ask you this. Let us not fall short and have the same stories repeated of our failure. I support the proposed rule as long as it addresses every piece of equipment that is used in the mines.

And on another note I would like to clear up and no disrespect to the people that spoke before me, but something my Dad always taught me being a simple -- simple

way of thinking. Have you ever heard the old saying that the customer is always right? If coal operators are saying that they think a .05 dpm and a 70% filter is the best that can be achieved, and if I'm a manufacturer, that's probably the best I'm going to do because I don't want to buck my customer. I don't want to tick him off to where I'm going to lose business. The customer is always right. The customer is saying a .05 dpm, 70% efficiency. That's what we want. We don't want MSHA's 95% efficiency rule, we want a 70% efficiency rule. We want a .05 dpm standard. You hear what I'm saying? This is what we want.

The only way we can overcome that is that if you make the regulations and you say it has to be better, you say it has to be done on all equipment, you say it has to have a .12 dpm standard, you say that it has to be 95% efficient. And I guarantee you -- I guarantee you we'll have it. We'll have it tomorrow. And it will be cheap. There will be people out there breaking their necks to get it. We got it today, we got it today. You've heard of PA, how they have different equipment. They told you only two manufacturers have a 95% filter efficiency, I'm going to submit information to you today that shows you that's not true. There's more out there. But it's not in this little corner of West Virginia. You've got to look, you've got to search.

Because of the PA low and this proposed rule and anticipation that it may pass, its pushed a few people, that's pushed a few people to do something to help the health and safety of the mine. Those people are going to benefit. They are going to be on top of the game. And if that rule passes, and God I hope it does, there's not going to be a problem. There's not going to be a problem with competitiveness. People will make it. It's just like the old movie, if you build it, they will come. You've got to build it to make them come. You have to make them do it or they won't invest the time or the money. I appreciate your time and I thank you for letting me speak to you today.

MR. TOMB: Thank you, Mr. O'Dell. Any questions?

MR. O'DELL: Probably can we go home.

MR. TOMB: All right. Thank you very much for your input.

MR. O'DELL: I'll -- I'll get this sorted out and I will give it to you.

MR. TOMB: I want to thank all of you that are remaining here for coming. Before -- before it closes, is there anybody else that would like to make a presentation?

MR. CASTO: I'm sure everybody's tired but I would like to give some evidence as a conclusion --

MR. TOMB: Please come to the podium and give your name.

MR. CASTO: My name is Keith Casto and I really want to make this brief. I know you all's tired and I know we are too.

MR. TOMB: Let me get your name, sir?

MR. CASTO: Casto, C-a-s-t-o, Keith. I work at Eagle Energy Mine Number 1 at Van, West Virginia. That's A.T. Massey. I'm the UMWA Safety Committeeman at Local 633. After the fiscal year of 1998, ventilation wise we had roughly 43 violations from MSHA over ventilation. That's anything from stoppings damage to anything from curtains torn down to inadequate ventilation around the miners to whatever. It's a little bit of everything. I know everybody's tired, and I would just like to present this as evidence. I would like for you all to look at it. They keep hollering put more air on it, it will be okay. Well, we can't keep the air right we've got now. And I would like to present this as evidence if I could.

MR. TOMB: Okay, thank you very much.

MR. CASTO: Thank you.

MR. TOMB: Is there anybody else? Yes.

(Pause.)

MR. GLOVER: Thank you, my name is Rick Glover, G-l-o-v-e-r. I am a representative of United Mineworkers. I also served as one of the co-chairmen of the West Virginia Diesel Commission. I had not signed your list and I hope

that I don't hold you too long. But I spent two and a half hours in here this morning kind of waiting to see and unbeknowing to me, I didn't know that three of our Diesel Commission members was going to give a presentation of the West Virginia Diesel Commission. So I do feel obligated to come up as interested and share with you our concerns that the authorship of that presentation was not labor.

As Dennis said to you, it went from different levels of diesel particulate matter to today 8.5. We also heard today about 18 months that the Diesel Commission has been playing with this. I could be wrong, I stand to be corrected if I am, the last time we met with June 12th. We encouraged the industry for us to keep meeting at that time and try to work towards a goal of improving technology and make it available.

Now, let me just share something with you. And you can say, well, that's your opinion which I think there has been a lot of opinion shared here today. And I also didn't know there were so many smart people in this room today. But if you will focus on the experts and what they're telling you about the coal miners or anyone exposed to diesel, what they should be breathing is moot of what you have heard today. With the exception of how we can achieve those standards.

Don't listen to Rick Glover because I am not an

expert. I do know NIOSH is, I know OSHA is. I know there have been tremendous studies in California. I know that they have been proven that the carcinogenics of diesel particulate material will kill you. I sat back and I listened about the hazards of electricity, trailing cables, trolley wires, local equipment. Do you know something, as I enter a coal mine I look at that trolley. And I know that trolley will kill me. And I know how to protect myself from getting killed from that trolley. A trailing cable. I know that a trailing cable will hurt me. And its in my control, most of the time, to keep from getting hurt. As long as I'm not pressured by economics to go, go, go. And that's what takes place here in southern West Virginia.

There is more pressure on coal miners right today in my 30 years of being in the coal industry. But short of that, those hazards I know and I can protect myself. But you know something, diesel, I cannot protect myself from. I have to depend on what you people decide. Or the West Virginia Diesel Commission. So keep that in mind when we talk about the hazards that coal miners and how industry wants to protect these coal miners. We've got to get this electricity out of the coal mines like you've heard today.

But we want to get something out there to you that when it bites it kills you, you just don't know you're being bit. So once you all come to a point that you all start

deliberations among yourself, I ask of you to look at the experts of what levels miners should be exposed to, and not the economic benefits of what the industry wants.

Now, spinning off on the economics, they told you how they could pay for this after-treatment devices. They told you that they could be more productive. I could stand here and tell you that one of the most productive coal miners in the world, right here in southern West Virginia and northern West Virginia, bar none. We're competitive. We're not losing markets. Think about it. Or show us where we lost the markets. I've been told if you work regular, if you hustle, then you have a job forever. What we've done is we've worked ourselves out of job. We're producing three times as much coal with about a third of the workers. Think about it. We are competitive.

Now, let's talk about diesel itself. We've got a couple of options. Its not like we're on the verge of losing an industry or jobs here in this country. There is better equipment and there is trolly wire and there is trailing cables and we're competitive. We do not want diesel coming to our state that is not protected with after-treatment devices. Now, let me share -- and I've got 30 minutes I guess. So whenever I start running over my 30 minutes you tell me. Because I sat two and a half hours today and listened to management go on.

So -- but anyway, short of that, the economics that develops from diesel, and that's how we'll pay for it is by the efficiency of these after-treatment devices. We will, if we put our treatment devices on, we'll save on workmen's compensation. Because as some of these others, my grandfather died from black lung, not from diesel I don't think because I don't think he was exposed to it. My father and my mother's father. And we suffered. And we're not asking anything of this panel that I don't think we're entitled to. I think everyone should be entitled to air that they can breathe and feel comfortable that they will have a longevity of life. Not because somebody in the coal industry says a .05 is safe for coal miners.

And if you check the records, I can't tell you how many coal miners died from cancer, but I can tell you its out there. And probably if you search hard enough, you'll see that it's higher than the national average. And you can say well that's from black lung. It's hard to tell what its from. MSHA's long overdue, in all honesty, in addressing the health issues, they've been behind. I really appreciate this panel to be honest with you. I appreciate standing here before this panel. I appreciate and its an honor for me to stand here and point out our concerns. That we do not want diesel to come into our state without after-treatment devices.

Now let's talk about the .12 just for a second. And I'm only going to introduce one document so if you all want my testimony, you're just going to listen to whatever you've got set up there. No I am going to introduce an official document. As Dennis said, PA come out with the regulations, everybody said, Aw hell, we don't like that, excuse the language. We can't achieve that. But I would say if you talk to Jeffrey, the reason that they have flame tech is because they were trying to achieve the levels in Pennsylvania. If you ask Patts, he would probably tell you the same thing. If you ask Ruhmac and I've listened today, and let me just go over this because I want to make official document because someone say it's unofficially turned in. This is Dr. Godham's signature on this. There was a company, as Dennis said, that was very interested in achieving something helpful for this industry. And I don't think anyone is more helpful than Dan over there from West Virginia University that's trying to deal with what he had to deal with.

But here's a letter to me and its in reference to the LPU2 engine using diesel, number 2.5 sulfur. And it's using an after-treatment device. And, you know, this is on a smaller engine as you've heard about too. You know the 19 or 14 they derated it. This shows you what we can achieve if we want to. Node 1, .71; Node 2, .245; Node 3 is an .06;

Node 7, .10; .5, .000, .o2, .1. Coming out with a total weighted average of .18. That's pretty well close when we talk about outby equipment of .12. Not exactly there but it can be achieved. Also you've got a 90.95% efficiency. I don't know what this product costs but it was engineered because of what we were trying to do and the manufacturers were trying to get a market. Same thing as Jeffrey, same thing as Patts, and same thing as a whole lot of other people.

I'll share with you as a member of that Board, that the manufacturers come up to me and said one day. They said Rick, you know you all had some concerns that we realized. And it referred back to what Dennis said about customers. They said we are controlled by this 10 foot gorilla. And what they were telling me is they would like to do what we was asking. But they were being controlled by 10 foot gorilla which is the coal industry that buys their products. So if we don't set this standard by the experts, whether it's a .12 or .15, go by the experts of what's achievable. Getting to the efficiency of the filters to be honest with you myself, an 80, 85% of filters is satisfactory to me.

So let's talk about what are filters for. It's to catch the by-products of combustion, bpm. All right. As I heard here by some of them, the dirtier it is, the more

efficiency you get. Well, if you put a filter on there and you've got a clean burning engine, that means you're going to have a longer life for that filter to last. But more important than that, what is that filter for? Its to let you know what your engine is doing. Because if you don't change that filter, you're going to create back pressure. You're either going to blow your engine up or you're going to create enough back pressure to where it will shut down if you put the right sensors on it. That's the reason we want filters. So when something malfunctions, its a catch-all.

Not I list the technology, how this would hinder technology today. But let me tell you what hasn't been said today about hindering technology. How does a filter prevent you from not creating greater technology. We have for one a petition for modification. It hasn't even been mentioned in this room today. Let's say if we had a standard of a .15 with 80% efficiency, and as the guy I think from Joy -- I mean not Joy, from Jeffrey, I apologize -- stated, that there's electrical injectors. I don't know what all that stuff is. Let's say if it comes out. Why can't they petition? Why can't they petition and say, hey, we can meet that standard. We can get to .12. Then they come out with another device later about a filter. Well we don't need it because we've got this shutdown, this measure now. CO will shut your machine down. It will tell you what the diesel

particulate will so it's going to shut it down. Your coal miners are really exposed.

How do we lessen the degree of safety? Now you're probably sitting there wondering well, you're on that Diesel Commission in West Virginia. What are you all going to do? I told you what we done. We quit meeting on June 12th. We quite meeting on June 12th and pretty well give up on trying to achieve this goal. So I have a lot of respect for you people on this panel. We are short of time, there's a lot of hard work went into it. I have my personal feelings of why it shut down and I won't say too much on that.

But in closing, I do ask you, in all sincerity, and I've been there. Like I said, I dealt with it for nine months and it was one of the most complex issues. Please don't look at the economics in a sense that you are going to give higher than what the experts recommend. I don't want my son or my daughter or anyone else in my family to die from lung cancer. I watched my Mom die from lung cancer, I watched my Dad. And I can tell you that he wasn't -- ever got federal black lung. He asked me to do one thing before he died. And think about. Now here's a man that's passed away, is to have an autopsy done his lungs that he would never know whether it killed him or not, but some unjust system but maybe and I have no -- or he has no dependents at home so there's no money to collect, that it would clear our

minds that he had black lung because he suffered. And guess what that autopsy come back as? That he had black lung.

Now, think about that in a sense of long term effects in our children and future coal miners. Probably, if I'd go back to the mines, I got 10 years left in me at the most. Probably never will because I don't have a job. But there' generations that will be coming on. We can say well we'll address this later. It won't be addressed. It will be addressed when you all say this is the level.

And in close, I am supposed to say this about the Diesel Commission. It's made up of three labor representatives, its made up three industry. We're probably going to end up with a diesel regulation here in this state. Because when we come to an impasses as we did, we will be going to arbitration to resolve our issues. Now we may win that, I think we have a pretty good shot at success. We will try to protect the miners as much as we can. In think you all are sitting in a better position because I think you all got some experience in health. I know Ron does. I don't a lot of individuals. I know George a little bit. You've got a golden opportunity. Whether we phase this in or we do it all at once, it can be achieved. If there's any questions I'll be glad to answer them and I do want to submit this. It has Dr. Godham's signature on it. It was sent to me, but in turn I guess you could say I would assume

this is an official document on that LPU test and that new Ruhmac system. I would encourage you to go look at that system. It is adaptable. It is something that's feasible, it's practical to do. And I think there's already been incentives for this industry to move in a direction of protecting coal miners health.

And in closing, unless there's any questions, you know, I appreciate, as I say, standing here before you and also standing here saying what I honestly believe from my heart. I am more of the fortunate ones. I work for this organization. I'm not in and out of these coal mines everyday. I'm probably about the same way you all are. I have been in diesel mines and I hate to, be honest with you, make my living in a coal mine with diesel and breathing that day in and day out. I don't think no one In this room does. I think its been great today where no one has been smoking. I feel we have breathed today good air. And I think the coal miners are entitled to that also. And I thank you unless there are any questions.

MR. SASEEN: Rick, can you share, does the labor side of the West Virginia Commission have recommendations that you could share with us?

MR. GLOVER: I'm sorry, what did you say?

MR. SASEEN: Does the labor side of the West Virginia Commission have recommendations that you could

present to the -- or share with our group?

MR. GLOVER: Yes. What we can do and I think Jeff will be on the last best offers, we did a -- that's entirely up to Jeff.

MR. SASEEN: okay, thank you. And just for the record, can -- you gave those levels from the LPU2 test, could you state what those levels were?

MR. GLOVER: What mode?

MR. SASEEN: Levels were in the units?

MR. GLOVER: Do you mean what mode?

MR. SASEEN: The units.

MR. GLOVER: I don't exactly understand what you mean by units.

MR. SASEEN: Unit .71, the --

MR. GLOVER: Oh, okay, yes. This would be your grams per brake horsepower.

MR. SASEEN: Grams per brake horsepower? Okay, thank you, just for the record. Thank you.

MR. GLOVER: Yeah, its the Rumach D2. It's a new system they came out with. Pretty innovative, pretty impressive. I think that you all ought to look at it.

MR. TOMB: Any other questions? Thank you, Mr. Glover. Let me go one more time. Do we have anybody else that would like to make a presentation before I close the meeting.

MR. DUNCAN: Jeff Duncan, United Mineworkers. I'm not going to speak. (Laughter.) Dan just straightened me out. The units of measurement on the document that Rick submitted is grams per hour.

MR. TOMB: All right, I would like to again thank you for coming to this hearing today and providing this valuable input that we certainly will use in helping to finalize our rule. I want to remind you that the record is open until February 16, 1999 so that you -- if you have any additional comments or have any re-thoughts on what occurred here today, you can submit those comments for the record up until that date. I appreciate your coming. Thank you very much. This meeting is closed.

(Whereupon, the meeting was adjourned at 5:30 p.m.)

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REPORTER'S CERTIFICATE

DOCKET NO.: N/A

CASE TITLE: PROPOSED RULE DIESEL PARTICULATE MATTER

HEARING DATE: November 19, 1998

LOCATION: Beaver, West Virginia

I hereby certify that the proceedings and evidence are contained fully and accurately on the tapes and notes reported by me at the hearing in the above case before the Department of Labor Mine Safety and Health Administration.

Date: November 19, 1998

Rebecca Back

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